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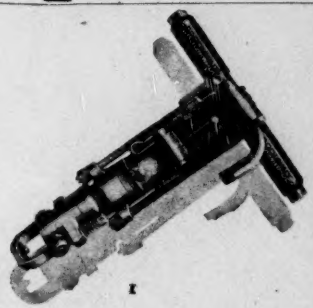

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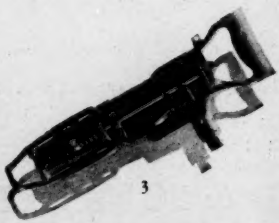

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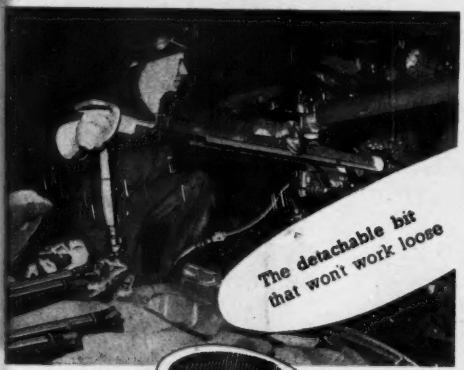

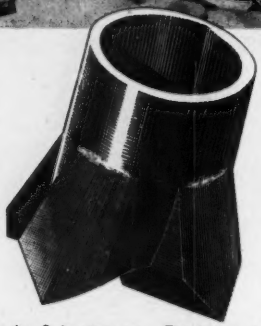

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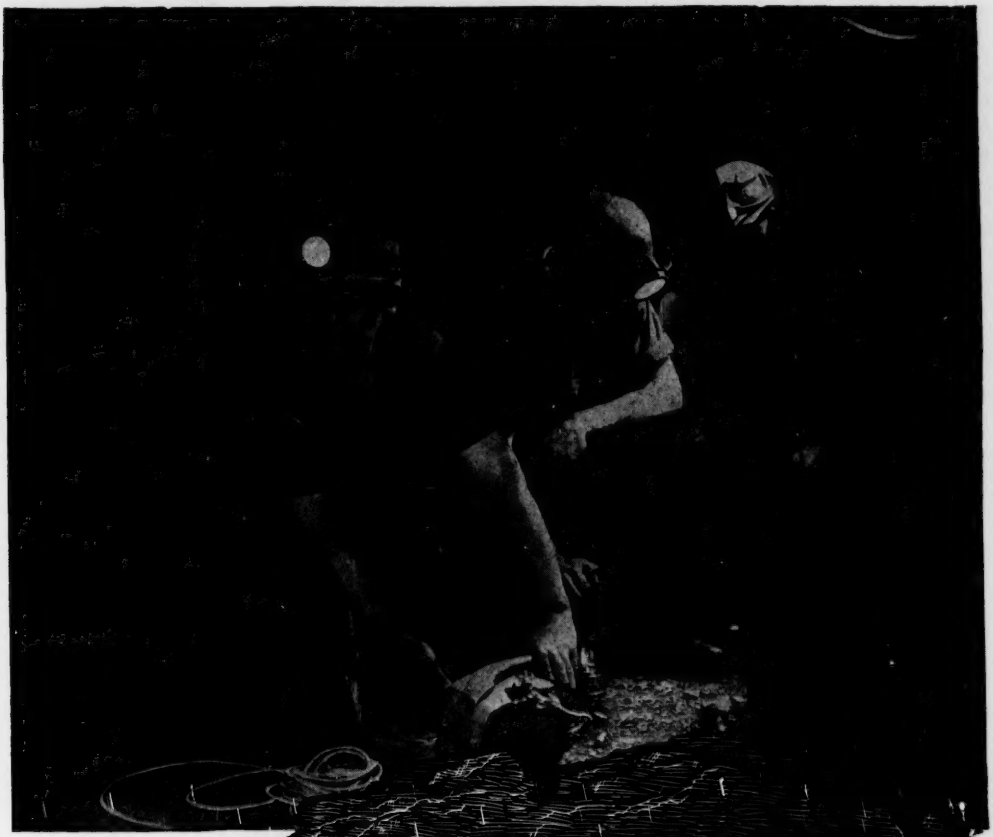

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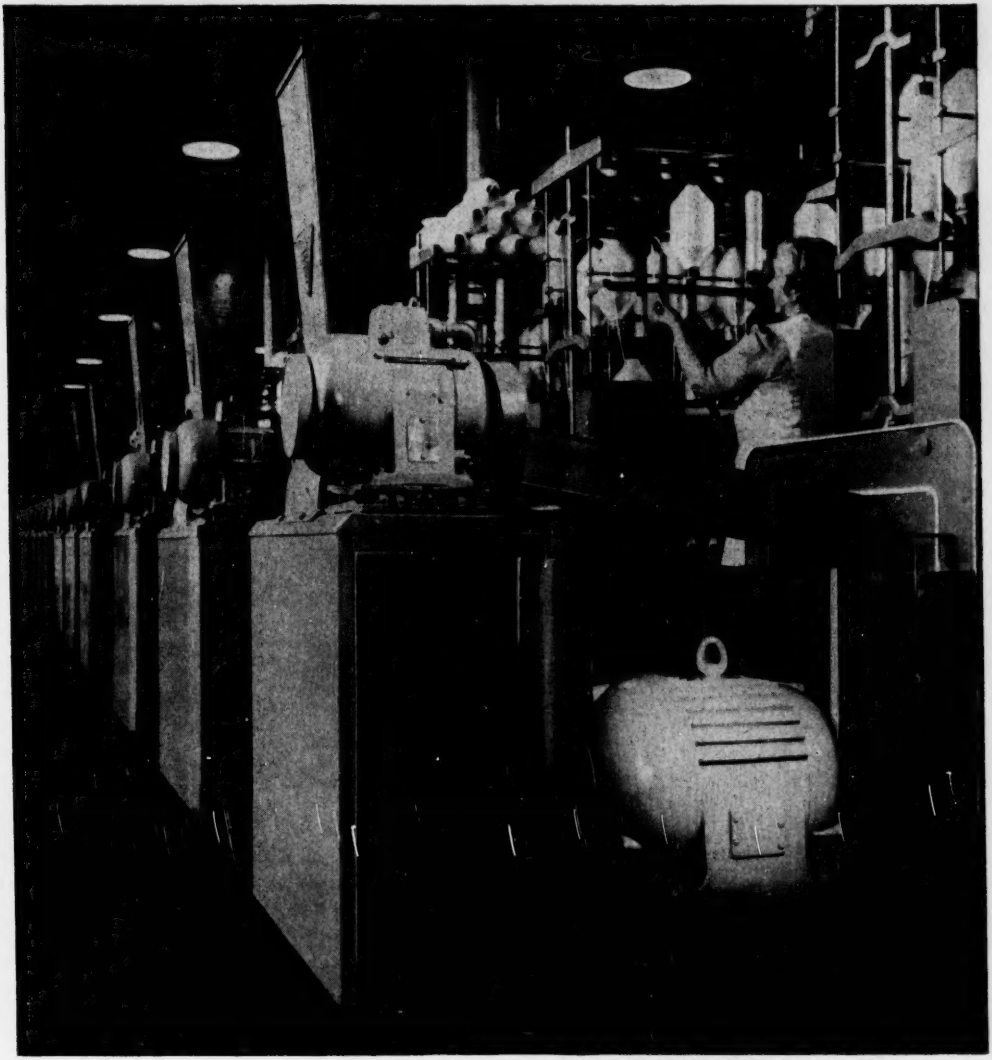

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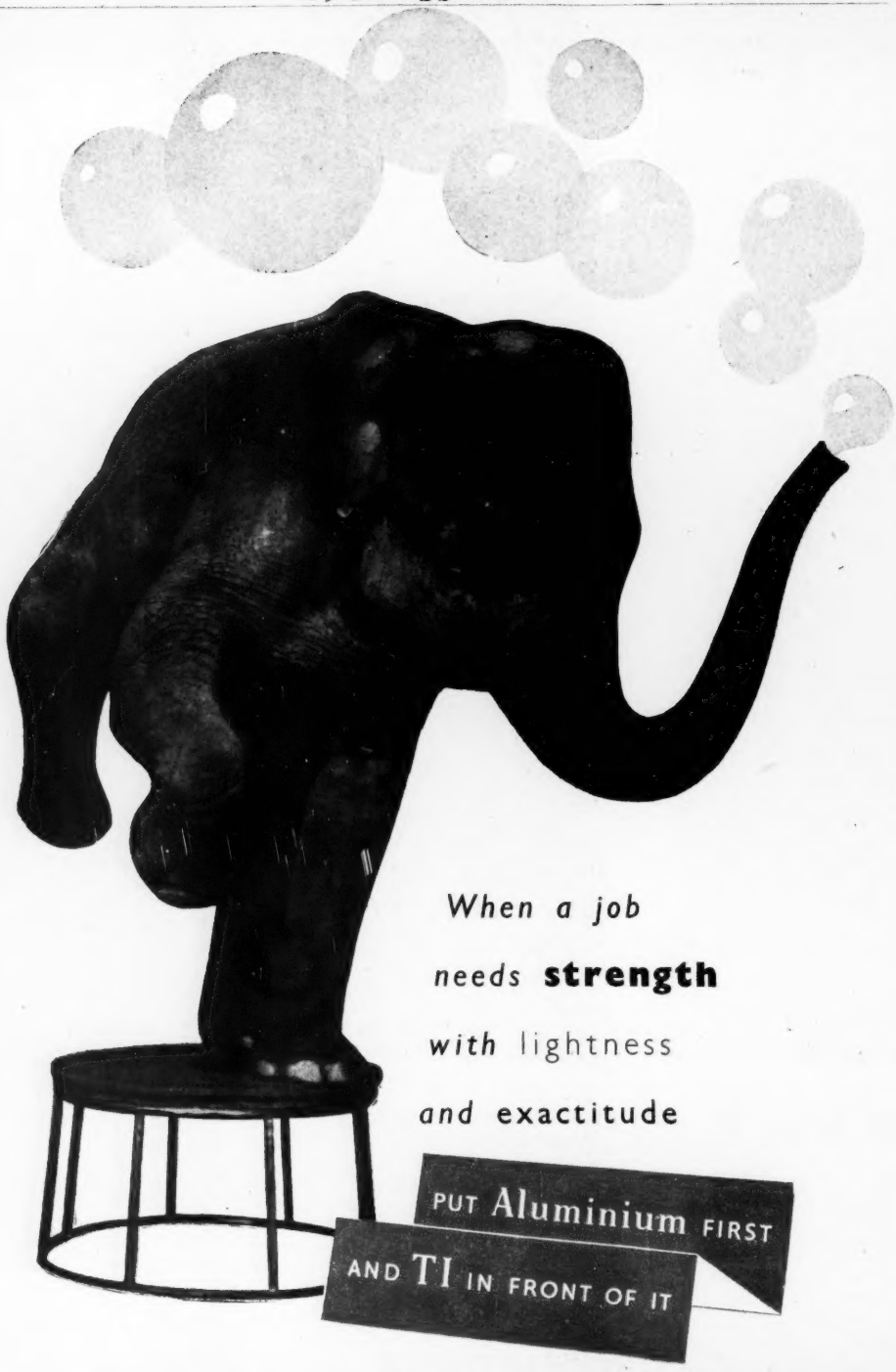
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NOTES AND COMMENTS

Gold Coast Mining

The important mining industry of the Gold Coast has long been based on the production of three products, gold, diamonds and manganese. Recently a fourth, but at present minor product, has been added in the shape of bauxite. The total value of the mines output for the 12 months ended last June showed an increase of £3,171,363 with a total of £16,567,024. Of this roughly half was contributed by gold valued at £8,602,140; £5,688,887 by manganese exports; £2,071,149 by diamond exports and £204,848 by bauxite exports. The report of the acting Chief Inspector of Mines, Mr. C. W. F. Bond, is mainly statistical, though some brief particulars supplied by the various managements throw occasional light on the position at various properties.

The output of gold from 10 lode mining companies and one dredging company amounted to 693,721 f.oz., compared with 679,370 in the previous 12 months. The following table shows the output of individual mines, tonnage crushed, and the grade of ore treated.

Company	*f.oz.*	*Tonnage*	*Grade*
Ashanti Gold Fields ...	190,430	230,958	16.5 dwt.
Ariston	107,135	310,910	6.9 ,,
Amalgamated Banket ...	91,946	537,500	3.4 ,,
Bibiani	73,969	337,961	4.65 ,,
Taquah & Abosso ...	65,867	277,000	4.7 ,,
Marlu	51,600	508,550	2 ,,
Bremang Gold Dredging	40,575	8,885,480	cu. yd.
Konongo	31,531	45,945	13.5 ,,
Gold Coast Main Reef ...	29,738	93,491	6.25 ,,
Lyndhurst	10,853	30,165	7 ,,

Nanwa Gold Mines started crushing in March when 77 f.oz. were recovered from 2,108 tons milled. Ashanti-Adowsena, Ashanti-Obuassi Reefs and Gold Coast Selection Trust were on a care and maintenance basis at the end of June.

Ashanti Gold Fields increased the tonnage crushed from January by 1,000 tons to 20,000 tons a month and its output by 250 f.oz. to 16,000 f.oz. a month. Mine development increased considerably during the period under review. At Bibiani, three-quarters of the output came from underground. and one quarter from open cast working. At Marlu, a start was made in the opening up of the underground ore body in preparation for mining.

The African Manganese Company, operating at Nsuta and Hotopo, exported 747,836 tons of ore. The Yakau manganese mines near Dixcove were worked on a small scale throughout the year and exported 4,040 tons of ore, shipped to the Continent and to the U.S. The property is now being prepared for the installation of machinery.

The Consolidated African Selection Trust was the principal diamond producer, with seven pan plants operating throughout the year and a new experimental plant, due to come into regular operation at its maximum capacity, during the second half of this year. Prospecting operations are said to have made satisfactory progress. Smaller producers were Akim Concessions, Cayco, and the Holland Syndicate. Some 5,000 natives were employed by 140 African diggers in the Oda-Kade and Wasaw-Aowin districts, but here again no output figures are recorded. Exports were much lower in the year under review at 548,371 carats, compared with 978,304 carats in the previous twelve months.

The British Aluminium Company exported 105,545 tons of bauxite, compared with 135,145 tons in the previous 12 months, the reduction being due to causes outside the control of the Company. The bauxite concessions of the West African Aluminium Company were on a care and maintenance basis.

The total number of natives employed was the highest since 1941-42, amounting to 40,614 Africans.

British Columbia's Faith in the Future

The remarkable phase of industrial expansion through which British Columbia, like other parts of Canada, is now passing, is as much a testimony to the vigour of free enterprise operating in the development of the natural resources of a young country, as of a sturdy faith in the future of the country itself. A list of projects, completed and under construction since January, 1950 (confined to enterprises of $11,000,000 and over), compiled by the Department of Trade and Industry, Victoria, adds up to a total cost of well over $700,000,000—a figure which is justly claimed to be arresting even after providing an ample margin for subsequent adjustment.

Developments under construction in British Columbia of special interest to readers of *The Mining Journal*, are the $500,000,000 basic aluminium plant and hydro-electric project of the Aluminum Company of Canada, Ltd. (to

which reference has already been made in these columns); the expansion by the Consolidated Mining and Smelting Co., of its zinc smelter facilities at Trail, a fertilizer plant at Kimberley and an increase in the generation of hydro-electric power for this expansion, at a total cost of approximately $2,250,000, and the same company's H.B. Mine, Salmo development, costing about $2,750,000. The Wahleach Lake power development, by the British Columbia Electric Co., Ltd., is estimated to absorb about $10,000,000 and other developments in this company's 1951 budget, will require about $161,000,000.

A report has just come to hand stating that there is a strong probability that the Aluminum Company of Canada's project, referred to above, may be expanded still further as U.S. Government officials are now reported to be urging the company to produce still more aluminium than was originally contemplated.

Completion of this plant four years hence is expected to involve an expenditure of $550,000,000, of which $160,000,000 will be spent on the first phase of operations, including a dam, tunnel, powerhouse and roads on which over 3,000 men are already working. Contracts for three turbines have been given to Vancouver Engineering Works, Canadian Allis-Chalmers and Dominion Engineering, and three generators will be built by Canadian Westinghouse, Canadian General Electric and English Electric Company.

Swedish Iron Ore Developments

Reports from Sweden state that the State-owned Luosaavaara Kirunavaara Ore Co. is planning to increase its mining output from 9,000,000 tons to 15,000,000 tons in 1955. The new plant installations needed to achieve this output will cost the company about 60,000,000 crowns.

At the same time, the company has already started rationalization and extensions costing over 200,000,000 crowns; the latter include a change-over to underground mining in Kiruna instead of the open-cast method now used. (See "The Iron Ores of Sweden," *The Mining Journal*, October 12 and 19.) In addition, the iron ore railway to Narvik in Norway is to be improved at a cost of about 70,000,000 crowns to Sweden and 15,000,000 crowns to Norway. Part of the sum of 200,000,000 crowns will also be spent on extending and improving the iron ore ports, like Lulea.

Latest official statistics show that Sweden's iron ore exports brought in 323,000,000 crowns in the first eight months of this year, or 71,000,000 more than in the same period last year, due mainly to an increase in prices. The average price during the first eight months of this year was 33.44 crowns a ton, compared with 30.80 crowns a ton in the same period last year. The highest prices—37.62 crowns a ton—were reached in August, doubtless under the impact of the Korean war and world rearmament, which has created a strong demand for Sweden's ore. This can be seen from the fact that the value of the whole of last year's exports was 405,000,000 crowns—only 82,000,000 more than the amount realized in the first eight months of this year.

Swedish producers are confident that the market will remain equally good even if international tension slackens. Europe's pig iron production is increasing, they say, and it seems that she will be able to take all the ore Sweden can spare.

Hungary To Have Large New Iron Works

November 7 is the date marked for smelting the first iron at the large new Danube Valley Iron Works at Dunapentele, 40 miles from Budapest. When finished, the Dunapentele works are expected to smelt more iron than all other iron works in Hungary together. (During the current Five Year Plan, which ends in 1954, Hungarian steel production is to be raised from 890,000 tons to 2,000,000 tons a year.)

A special Hungarian process will make soft coal from the Komló and Pécs mines into coke. A total of 810,000 tons of coal a year will be needed to feed the 51 ovens in the coking plant. The gas generated will be used to fire the smelting works and power station, and other by-products will be used in the adjacent chemical works.

Iron ore will be imported from the Soviet Union already graded and concentrated. Like the coal, it will travel by barge down the Danube to a port specially constructed to serve the new iron works. A three kilometre long overhead cable conveyor will carry both ore and coke from the port to the works. By the end of 1954, two large smelting furnaces will be in action; moreover, it is planned to build two more furnaces and a ferro-manganese furnace during the second Five Year Plan. The steel works will have four Martin furnaces of 125 tons capacity and a further four will be built during the second Five Year Plan. There will be hot and cold rolling mills; in addition, the plant will have a large maintenance works, a scientific laboratory, a cement factory to process the furnace slag, and a tile and silicate brick factory. Five million cubic metres of soil will have been moved by the time Dunapentele is finished. The piped water system will be 45 kilometres long, and there will be 26 kilometres of canals. Railway lines will total 60 kilometres, with three marshalling yards. The works will need 300,000,000 kWh of electric energy annually which will be supplied by its own thermal power plant, and 250 cu.m. of water will be pumped every minute, which, after purification, will be used to irrigate surrounding land.

In addition to the iron works and the new port on the Danube, a new town has been constructed in an area where only fields existed just over a year ago.

Belgian Congo Tin

(From Our Own Correspondent)

Brussels, Oct. 16

While the sixth meeting of the International Tin Study Group in Rome failed to reach any positive conclusions, owing to the strict instructions given by the United States Government to its delegates, Belgian representatives at any rate were impressed with the personally friendly attitude of the United States delegates, and are hopeful that their representations back in Washington may have a favourable effect on those who are directing United States policy, more particularly as regards the suspicions of the Americans that the fall in production in the Belgian Congo and Ruanda-Urundi was the outcome of an agreement between world producers to restrict output. Your correspondent pointed out in *The Mining Journal* of September 14 that Géomines suffered from the abnormal rains last winter, which flooded the mines and works. A further cause of the output reduction was that the company had ordered in the U.S.A., a plant to treat its hard ground. To fulfil this order the engineering works required to execute it nickel and other scarce materials, but the United States Government refused to make any allocation, and consequently the firm could not carry out the order. Thereupon Géomines notified the American authorities that they were unable to produce the tin tonnage contracted for, and then Washington gave way. But these negotiations naturally occupied a considerable time and the scheduled programme of operations had thus not been achieved. No doubt the attitude of the U.S. government was based partly on ignorance of actual conditions and led to wrong inferences. Now that the true position is better understood the way, it is hoped, has been cleared for a fresh agreement. However, though the atmosphere is better, no step has yet been taken by either side.

Developing Tanganyika's Coal Deposits

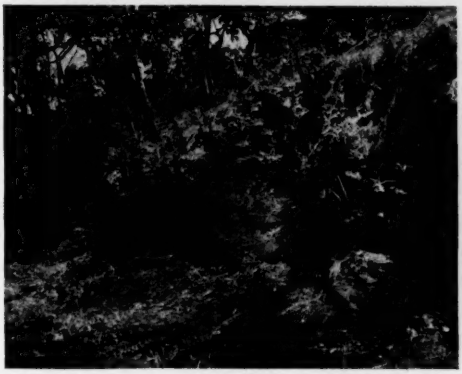
The Colonial Development Corporation's coal investigation and exploration in the Ruhuhu river area of South West Tanganyika is stated to have met with marked success. Diamond drilling has indicated that there are more than 40,000,000 extractable tons of coal in one area, with possibilities of considerable extensions. The gross tonnage found exceeds 200,000,000 tons, though this cannot all be mined.

The occurrence of coal in the remote and little-known parts of Tanganyika bordering Lake Nyasa had been known since the later years of the 19th century, but it was not until recently that the extent of the field was suspected as a result of the discoveries of Mr. G. M. Stockley, Director of the Geological Survey Department of Tanganyika, who, in 1930, traced coal deposits in the Ruhuhu river basin. The Corporation's Resident Geologist, Dr. C. S. Stansfield Hitchen, who is in charge of the investigation, operates under the direction of the Corporation's Minerals Division. Dr. Hitchen and his staff have continued the survey in the Mbalawala area, a few miles south of the previously known exposures in the Ngaka coalfield, to discover further substantial coal deposits.

The area explored is remote and difficult of access. Over 60 miles of tracks have been made through rough unmapped territory beyond the existing Lindi-Songea road, open only in the dry season; every rainy season, the temporary bushstick bridges were washed away and the team completely cut off for five months, and the transport of many tons of stores and equipment was a hard task. However, since the potentialities of the field have been assessed, more permanent communications are justified.

This diamond drilling rig—the largest in East Africa—is capable of reaching depths of over 4,000 ft. It is used in the investigations for coal in the Ruhuhu river area

The work, which started two years ago and has, so far, cost some £230,000, has achieved results five months ahead of schedule, a tribute to the geologists and mining engineers concerned, to the diamond drillers of the Craelius East African Drilling Co. Ltd., and to the several hundred African workers who had to be specially trained for the job.



A large outcrop of coal on the banks of the Mkapa River

The main investigation was made in the Ngaka River drainage basin, bounded on the north by the Ruhuhu River and has now been extended to the Kitewaka area, north of Ruhuhu and west of the Kitewaka River. In the Ngaka region, 150 sq. miles have been topographically surveyed and maps made. Sixty-five sq. miles of geological mapping has been carried out and 19 bore holes have been completed, involving about 19,000 ft. of drilling. In the Kitewaka area, 54 sq. miles have been surveyed and 2,000 ft. of diamond drilling done. Bore holes range from 200 to 1,900 ft. Over 500 coal analyses have been made showing that the coal compares favourably with most South African and Rhodesian coals and that the quality at Mbalawala is better than any previously known in Tanganyika.

The coals in which are found seams ranging from a few feet to over 20 ft. in thickness in the geological system known as Karroo, are slightly younger than the British coals of the carboniferous system.

Regarding the development of these deposits, which possess important strategical value, the Colonial Development Corporation states that two schemes appear possible; both would require close collaboration with the Tanganyika Government. One is for a small colliery with a production of some 500,000 tons a year for East African consumption; the other, more ambitious, envisages a large colliery with an output of perhaps 2,000,000 tons a year, three-quarters of which might be used for the production of liquid fuels. However, these schemes cannot come to fruition without railways.

IRON ORE DEPOSITS NORTH OF NGAKA

Furthermore, iron ore deposits are also known to exist 50 miles north of Ngaka, covering an area of about 15 to 20 sq. miles. When the technical and metallurgical difficulties, resulting from the high titanium content of the ore, have been overcome, it may be that one day this discovery may provide the basis for the establishment of an important industrial area in Tanganyika.

Because of the great possibilities opened up by the discoveries of the coal and iron ore deposits, and the plans for railways, the Governor of Tanganyika is to call a conference to consider the whole development of Southern Tanganyika.

Froth-Flotation Practice in Coal-Preparation Plants of Western Europe and Great Britain

By B. W. GANDRUD, THOMAS FRASER and H. F. YANCEY.

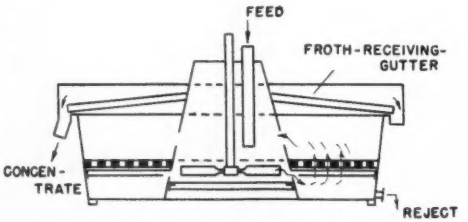
In the summer of 1950, U.S. Bureau of Mines engineers visited a number of coal-preparation plants in Western Europe and Great Britain to obtain information of European and British coal-cleaning and froth-flotation practices because froth flotation has not as yet been employed as extensively in U.S. plants as in British and European preparation plants. The results of this visit are embodied in U.S. Bureau of Mines *Information Circular* 7614, entitled "Froth-Flotation Practice in Coal-Preparation Plants of Western Europe and Great Britain," extracts from which are given below.

Many of the important coal beds in Western Europe, especially in the Rhur and in the Limburg, Netherlands, coal-mining region, are very friable, with the result that the run-of-mine product contains a large proportion of the sizes too fine to be treated successfully by any other method than froth flotation. Furthermore, the relatively high cost of producing coal from these beds has, for many years, made it economically feasible and desirable to treat the fines by froth flotation, especially in the coking-coal fields.

DUTCH STATE MINES FROTH FLOTATION PRACTICE

The largest froth-flotation plants handling coal in Western Europe are at the Dutch State Mines in Limburg. There are three colliery preparation plants with froth-flotation equipment. These are: the Maurits plant, which handles froth-flotation-size coal at the rate of 1,700 tons per day of 24 hours; the Emma colliery plant, which handles approximately 1,400 tons a day, and the Hendrik mine plant, which handles approximately 1,000 tons a day. All these plants are equipped with Kleinbentinck flotation machines, invented by the chief engineer of the Dutch State Mines.

The Kleinbentinck flotation machine (as illustrated) is an exceptionally large mechanical-agitation-type cell shaped like an inverted truncated cone. The tank is three metres in diameter and 0.8 metre deep, giving it a cubic capacity of 3,000 litres. The froth collects over the entire area of the cell and is discharged by a spiral sweep attached to the axial shaft.



Cross-section of the Kleinbentinck Flotation Cell

At the Dutch State Mines, these cells are assembled in a series of five, as shown below. It is necessary to mount the cells on a stepped floor, so that the tailings from one cell will deliver by gravity to the next cell. A pipe connection is furnished for this purpose. All the Dutch State Mines plants operate on a simple series retreatment of the tailings through the five-cell flotation units, with no recleaning of the froth product.

At the Maurits plant, which is typical of the Dutch State Mines flotation plants, there are forty Kleinbentinck cells arranged in eight units of five cells, each operating in series as outlined above. This plant is capable of delivering 1,350 tons per day of 24 hours of dry flotation product. The feed to the plant is ½ mm. by 0 coal, which comes from spitzkasten that collects the wash water from the standard jig-washed coal-dewatering screens jacketed with ½-mm. wedge-wire cloth. A typical plant feed contains about 15 per cent solids, with an ash content of about 18 per cent. The flotation plant delivers a concentrate of about 5½ to 6½ per cent ash and a refuse of approximately 75 per cent ash.

The froth carrying the cleaned coal from the flotation cells goes to a conical tank without any froth breaker, and from this storage tank the coal is drawn off to drum-type vacuum filters with stainless-steel wire cloth of ½-mm. mesh. These filters deliver a cake of about 25 per cent moisture (the inherent vein moisture of the coal is 1 to 2 per cent). At the Maurits plant, the filter cake then goes to rotary, kiln-type heat dryers and is then blended with the 10 mm. by ½ mm. jig-washed coal to produce the charge for the coke ovens. The dried filter cake from the heat dryers is delivered to the blend at about 11 per cent moisture, and the 10 mm. by ½ mm. from the jig is dewatered in Reineveldt centrifuges to about 6 to 7 per cent moisture.

REAGENT USED

At the State Mines flotation plants, the reagent commonly used is the waste liquor from the ammoniac recovery towers of the coke plant, but this is supplemented by small quantities of other reagents. A typical example of the use of reagents is the Maurits plant, where the average use of the ammonia tower waste liquor amounts to 1.33 cu. metres of the lean liquor per dry ton of froth-flotation concentrate. This waste liquor contains an average 0.38 gramme per litre of tar acids and 0.31 gramme per litre neutral oil. Besides this waste liquor, the Maurits plant is currently using an average 0.21 kilogramme per ton of middle oils from the coke plant. This crude middle-oil product contains 29 per cent tar acids, and the rest is neutral and basic products.

It is the standard practice of these plants to use a rather large proportion of flotation oils derived from their own coke plants in order to obtain a froth product that filters very readily. At the time the plants were visited, some neutral gas oil from the coke plant was being used also to increase the filterability of the froth product.

Waste water from froth-flotation plants and jig washers is clarified by flocculation in Dorr-type thickeners. The flocculating agent is a mixture of starch and ferrous sulphate, and the average re-agent consumption ranges from 12 to 15 mg. of starch and 6 to 12 mg. of ferrous sulphate per litre of waste water fed to the tanks. The starch is specially treated, cold, and soluble. Sometimes it is boiled before use. At the Maurits colliery, the wash water from the washery is treated in a plant having two thickeners 20 metres in diameter. The flotation tailings go first to

the No. 1 thickener, where the starch is added, and then to the No. 2 thickener, where more starch is added and finally the ferrous sulphate. Thickened sludge from the No. 1 thickener is filtered on vacuum filters and then wasted on the refuse dumps. The thickened sludge from the No. 2 thickener is too fine for handling on drum-type vacuum filters, and this sludge is delivered to settling ponds, from which the water is pumped back to the washery.

WESTERN GERMANY

In the Ruhr district, many froth-flotation plants were destroyed or immobilized during the war, but some of these have since been placed in operation. Generally, in Germany and France rectangular flotation-machine tanks equipped with mechanical agitators of the Minerals Separation type are used for froth-flotation of coal. In Western Germany, machines of this type are manufactured by the three large companies, namely, Kloeckner-Humboldt-Deutz, Cologne; Schuchtermann-Kremer-Baum, Dortmund, and Westphalia-Dinnendahl-Groppel, Bochum. When the survey of plants was made, these manufacturers were active in developing preparation-plant projects, and several new plants with flotation equipment were under construction.

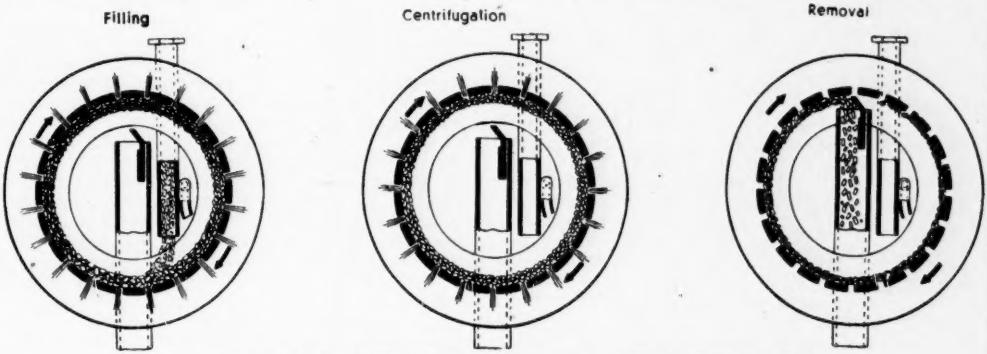
Unlike the State Mines practice, Western German practice in the handling of froth-flotation products usually includes a froth destroyer to condition the froth-flotation concentrate before it is delivered to the filters.

NEW EQUIPMENT AND TECHNIQUES

One of the difficult problems in the preparation of the finer sizes in Europe, as well as in America, is the treatment of the size intermediate between the flotation size and the smallest screened size adapted to efficient handling in gravity washing devices, such as feldspar jigs and launders. One method that is being attempted to close the gap is to adapt the froth-flotation processes to handling coal grains up to 1 mm. or even 10 mesh in size. In this connection, the Westphalia-Dinnendahl-Groppel company has been conducting some interesting experiments under the direction of Dr. Quittkat, their froth-flotation specialist, who has found that mechanical flotation cells of great depth will handle grains larger than the standard cells about 1 metre deep. His experiments were made with Minerals Separation-type cells of Wedag manufacture, conventional in every respect except that the cells that contain the pulp being treated are made 2 metres deep, and the agitator shaft is extended correspondingly. Dr. Quittkat found that with these cells he can successfully handle bituminous coal of the Rhur type up to 1 millimetre in size. As a result of these experiments, he believes that the size of grain that can be floated is directly related to the depth of the pulp in the flotation cells. His explanation of this phenomenon is that the air bubbles entrained and released at the bottom of the cells by the motion of the high-speed agitators are very fine. As they ascend to the surface, traversing liquid of gradually decreasing static pressure, the bubbles expand and also are increased in size by the juncture of two or more bubbles. These larger bubbles will attach themselves to and lift larger particles of coal. Based on the results of their experiments Dr. Karl Groppel, director of the company, expressed the opinion that they can now install froth-flotation plants to handle raw coal of 1 mm. by 0 size.

The same company has experimented also with the froth flotation of coal in dilute heavy-medium pulps, using very finely ground magnetite as the heavy-medium material. Dr. Quittkat reported that, with the expedient of using a magnetite suspension of 1.2 specific gravity, they can float coal particles as large as 2 mm. However, they do not consider that this modification of the froth-flotation practice is of any great practical value.

At two preparation plants in the Aachen district, there are two installations of the Escher Wyss centrifuge to handle very fine coal. One of these, at the Lauerweg colliery in Kohlscheid, is handling raw sludge, and the other, at the Adolph colliery in the same general area, is handling froth-flotation concentrates. (See illustration.)



Cross-section of the Escher Wyss Centrifuge manufactured by Escher Wyss Ltd., Zürich

These machines, manufactured by Escher Wyss, of Zürich, Switzerland, are used principally in the chemical engineering industry, but, as mentioned, they are used above the two collieries for dewatering fine coal. Both intermittent scraper-type and continuous pusher-type Escher Wyss centrifuges are available, but those at Lauerweg and Adolph collieries are intermittent scraper-type. They have been in use for a considerable period, and performance data furnished by the company indicate that they are effective for reducing moisture in sludges of froth flotation size to about 15 per cent with a loss of only 10 to 12 per cent of the solids in the effluent. The engineer advised that this operation permits them to continue to circulate the washery water without bleeding of dirty water from the system. Filling, centrifuging, and scraping require about 10 minutes.

Siebtechnik A. G. has developed a small, high-speed, vertical, continuous centrifuge, particularly adapted to handle sludges to froth-flotation size. It is more like the conventional centrifuge dryer commonly used in the United States. One of these machines is being operated

experimentally in the laboratory of Siebtechnik at Muelheim, Ruhr, but is not yet in commercial use. The inventor, Dr. Lange, of the Siebtechnik organization, proposes to make them in several sizes up to 900 mm. in diameter of basket. From pilot-scale tests, he believes that this machine will reduce the moisture of ½ mm. by 0 slurries to as low as 9 per cent of surface moisture, but will probably lose 20 to 30 per cent of the solids in the effluent. Tentative flow diagrams discussed with the company indicate that they do not hope to close the washery circuit completely with this device, but plan to discharge the effluent to storage tanks and finally to recover the effluent solids by use of vacuum filters. To the authors, it is a little difficult, however, to see how the use of both centrifuge and vacuum filters could be advantageous when vacuum filters alone can do the entire job.

FROTH FLOTATION PRACTICE IN GREAT BRITAIN

There are probably more froth-flotation plants in Great Britain treating coal than in any of the countries on the continent, but none of them treat particularly large tonnages. It is doubtful that any of the plants are treating more than 30 tons per hour. Plans were well-advanced, however, in the summer of 1950 for construction of at least one plant that will have several times the capacity of the largest plants now in operation.

The enormous divergence in floatability between some of the coals treated by froth flotation in Britain is rather surprising, considering that they are all of bituminous rank. The medium "caking coals" of the East Midlands division with about 35 per cent volatile matter, for instance, are extremely difficult to float, require large quantities of re-agents, long periods of conditioning, and a low feed volume per cubic foot of cell volume.

After having given comprehensive data on the Dean and Chapter, Mainsforth, Bentley, Grimethorpe, Denby Hall, Winsor and Middle Duffryn plants, the authors make the following observations on noticeable differences between Froth Flotation Practice in Great Britain and the United States.

The most conspicuous differences between British and American flotation practice are in the size of the plants, the more general use of dewatering screens and closed circuits in Britain, and the almost universal use of the commonly available coal tar products, particularly cresylic acid and creosote, as flotation reagents, instead of pine oil and the petroleum products used so extensively in the United States. In all the plants visited, dewatering screens played some part in the removal of the flotation feed from the coarser sizes of coal treated in the main part of the preparation plant.

The flotation plants in Britain are, on an average, smaller in capacity than in the U.S., but they are far more numerous. There were 43 froth-flotation plants in Britain in 1950, with an average capacity of a little over 11 tons per hour per plant. This is a rather small capacity, compared with plants now in operation and under construction in the U.S., a fact no doubt due to the much greater tons-per-hour output of run-of-mine coal at the mines where froth flotation is used, which necessitates the treatment of larger tonnages of the froth flotation size.

CLOSED CIRCUIT SYSTEM

An outstanding feature of British froth-flotation practice is that the closed-circuit system is being adopted quite generally. With this system, no slurry water is wasted, and the filtrate from vacuum filtering of the floated coal and the overflow from the settling of the flocculated flotation tailings are returned to the main washery circuit and, in some cases, partly to the flotation circuit. The flotation tailings, after addition of flocculating reagents, are generally run to Dorr-type thickeners for settling. The settlings are withdrawn from the bottom of the thickeners and disposed of either into lagoons or on the refuse dumps, the overflow being returned to the circuit. The flocculating reagents commonly used as Dryfloc or Unifloc, made by the Unifloc Co. Ltd., Swansea, or ferrous sulphate and starch. The quantity required ranges from 0.5 lb. to as much as 2.0 lb. per 1,000 gallons of tailings to be treated.

In British plants, shaking screens for dewatering washed coal are used very extensively, and they are advantageous in some respects over the commonly used settling tanks and dewatering bucket elevators installed in the U.S. The underflow from these screens is usually pumped into a settling cone, where the cone underflow can go either directly to the froth-flotation plant or be dewatered again on a finer screen, the final screen underflow going to flotation. By drawing a sufficient volume out of the bottom of the cone, enough of the extremely fine material, say minus 200 mesh, can be removed for flotation to prevent an excessive build-up of fine solids in the washery water. In other words, the amount of "fines" removed is easily controlled by varying the volume of withdrawal from the cone spigot.

With this system of continuous removal of enough slurry fines from the main washer circuit to prevent a build-up of solids in the water, it might be expected that the flotation feed would have a somewhat higher proportion of fines smaller than 200 mesh than is usual in the U.S., where the flotation feed is usually deslimed, with varying amounts of slurry water being disposed of to waste. One screen analysis shows only 2.5 per cent minus 240 mesh, but this is either an unaccountable anomaly or due to the pneumatic aspiration of the run-of-mine coal. Through oversight it was not learned whether or not the aspirated dust was added back to the flotation feed in this plant, but it probably was not, and this could account for the apparent anomaly. At the other six plants, the end screens, which were not always 200 mesh, showed the following percentages: 16.9 per cent minus 200 mesh; 12.4 per cent minus 240 mesh; 22.9 per cent minus 240 mesh; 25.2 per cent minus 90 mesh; 47.2 per cent minus 200 mesh; and 60.2 per cent minus 200 mesh. These figures give an indication of the build-up of fines smaller than 200 mesh that would probably result from the use of closed circuits in U.S. plants—that is, circuits in which the flotation feed would not be deslimed and in which no slurry water would go to waste.

Higher Coal Output in the Netherlands

The recently issued annual report of the Limburg State Mines states that output for 1950 amounted to 7,700,268 tons (7,347,376 in 1949). The country's total output, including that of privately owned collieries, was 12,250,000 tons. However, in spite of the rising output, coal had to be imported. Before the Korean conflict, Germany, Great Britain and Belgium were Holland's chief sources of additional coal supplies, but at the beginning of the present year, coal had again to be imported from U.S.A.

Output of coke increased during 1950 from the previous year's figure of 2,120,323 tons to 2,194,036 tons, the State Mines having produced 64 per cent of this total. The State Mines also produced gas, fertilizers and chemical raw materials used, *inter alia*, in the manufacture of synthetic fibres. They employed 34,989 people at the end of 1950, as compared with 33,656 at the end of 1949. A total of 7,500,000 guilders will be paid to the State as dividend for 1950, as against 2,580,000 guilders for 1949.

Royal School of Mines' Centenary Banquet

To celebrate the centenary of the Royal School of Mines a Centenary Banquet, arranged by the Royal School of Mines Association, was held in the beautiful old Drapers' Hall, in the City, on Tuesday last.

Chief among the Association's many distinguished guests were H.R.H. Princess Alice, Countess of Athlone, and Major General the Earl of Athlone. The presence of Princess Alice on this notable occasion was particularly appropriate, as it had been her grandfather, the Prince Consort, whose interest and initiative had played so large a part in establishing the Royal School of Mines in the year of the Great Exhibition.

A loyal message to the King was sent from the banquet and the chairman, Mr. Vernon Harbord, president of the Association, read a reply which had ben received from His Majesty's private secretary thanking them for their message.

Mr. Robert Annan, Chairman of the Consolidated Gold Fields of South Africa, proposed the toast of "The Royal School of Mines" and referred to the establishment of the School and its staff in the early days of its existence.

"The century which has passed," he continued, "since the foundation of the School has seen an almost incredible change in the nature of the mineral industry from traditional and almost mediæval methods to the highly scientific industry upon the products of which the whole mechanism of our present day civilization depends. In the year 1851 the aggregate production of the four common non-ferrous metals was just over 300,000 tons. To-day it approaches 6,000,000 tons per annum. The easily discovered and easily worked deposits are rapidly being exhausted and the ever-increasing demands for metals and minerals of all kinds must be met from sources which are rapidly becoming more difficult to find and of much lower grade and greater complexity, so that the demands on the technical skill of the miner and metallurgist become greater every day."

STANDARDS MAINTAINED

In all departments, he said, the School had not failed to maintain the high standards set by its founders. During the period of the School's life there had also been a great advance in the status of the engineer. Not long ago the appointment of an engineer to the board of a mining company was unheard of. To-day a board without technical members was the exception and the investing public, without whose backing the industry could never have developed, had come to realize how greatly its security depended not only on the skill but on the integrity of the engineers in charge of the work.

"It has always been the aim of our profession to reduce as far as possible the natural risks inherent in the search for and the working of mineral deposits. Other influences have often worked against this but great gains have been made and the industry is becoming more and more stable as a result."

The School had maintained that standard of education in pure science on which alone sound practice could be built in these days of rapid change. "Above all," he continued, "the School has preserved that tradition of integrity without which, as our predecessors have said, the conduct of operations in distant lands would be impossible. As a result there is not a mining district in the world where its associates have not established the highest reputation in their profession. It is a record of which the School may well be proud."

The spirit of good fellowship which existed among mining men all over the world was one of the most rewarding features of a life spent in mining but that was not all. By its nature mining did not lend itself to mechanization to the same extent as other industries and the human element must always play a large part in it. It was, therefore, of the utmost importance that good relations and a robust and independent spirit should prevail through all ranks.

"Mining has played a most conspicuous part in the opening of new lands and in the development of our modern standards of life. It calls as insistently as ever for qualities of courage and enterprise and, while work in the mines is laborious, it gives scope for individual skill and judgment which is missing from industry organized for mass production. In an age which is becoming increasingly materialistic these are qualities to be encouraged."

INITIATIVE PASSING TO THE ENGINEERS

In the development of the industry, the initiative was rapidly passing to the engineer carrying with it responsibilities other than technical.

"On the one hand the State has to be convinced of the value of the industry and of its special problems. It has shown surprisingly little understanding of these in the past in spite of the overwhelming importance of raw materials to a country such as this. On the other hand is the whole field of human relations with staff and labour. "We must carry conviction that mining is a man's job—that if a man takes it up he will get satisfaction for his aspirations as well as his material needs and that the industry will not at any time let him down."

Mr. Annan said it was a privilege to pay tribute to the work of the School since its foundation during a period in which the British influence had been paramount in metal mining. It was a position which in spite of all handicaps they must do everything possible to uphold.

The President of the Royal School of Mines Association, Mr. Vernon Harbord, replying to the Toast, recalled that in February last year H.R.H. Princess Alice had been installed as Chancellor of the University of the West Indies in Kingston—the newest centre of higher education in the British Empire. He also referred to the fact that Princess Alice was a grand-daughter of the Prince Consort whose far-sightedness and active interest played so important a part in the establishment of the School.

All over the world, he continued, the reputation of School of Mines men stood high not only in respect of their work but as a hallmark of their integrity. The reputation of a School like theirs rested not only on the work of those who had achieved fame but also in the general quality of the men whose work did not always get public acknowledgment but was instrumental in benefiting the world at large.

The President announced that with their students scattered all over the world centennial celebrations were taking place in South Africa, Southern Rhodesia, Kenya, Uganda, Northern Nigeria, India, Newfoundland, Malaya and New South Wales. Telegrams had also been received from students all over the world.

THE CRADLE OF THE MINING INDUSTRY

The toast of "The Mining and Metallurgical Industries" was proposed by Sir Andrew Bryan, a member of the National Coal Board. Their School, he said, so far as this country was concerned, might be considered the cradle, or at least the nurse, of the mining and metallurgical industries which were now stronger, livelier and, he believed, more influential than ever in its history. The School had the advantage of a great line of professors and teachers and wise men on its governing body.

Mining was one of the largest, most important and widespread industries in the world and was also one of

the oldest. It had suffered no break in continuity from the distant past.

After recalling that the treatment of bronze and iron was mentioned in the Book of Genesis he continued, "We know that all human progress in those distant times was largely based upon discoveries of minerals and the recovery and treatment of the metals. More and more as the centuries have rolled on has the world been dependent on these industries. The sharpest division in the world to-day is between those with such industries and those without. To us in the island the two industries are, and must always be, the most valuable of all our industrial assets. It was the development of these industries which saw the industrial revolution which put Britain in the forefront of the world and probably decided the whole course of subsequent history.

"I am committing no breach of the Official Secrets Act when I tell you the quantity of coal now available is not nearly as satisfactory as we would like. But in days of great manpower and other difficulties production is improving. A great plan has been prepared for reorganization of the industry. That plan is being implemented and will, I feel, ensure continued progress."

Referring to ferrous and non-ferrous metals, Sir Andrew said 1951 was a time of universal shortage particularly of certain metals. Not long ago this island's economy depended on a world-wide shortage of one particular metal. That was the essence of the gold standard.

"Now as the result of two great wars and the vital necessity of the free nations to strengthen their defences during the present period of international tension, industry is finding itself deprived of its vital sinews."

He said that in the case of some metals, metallurgical extraction in this country was at a low ebb but it was surprising how many metals were produced in this country, albeit in small quantities. No country was self-supporting in metal production—not even the United States. Happily the British Commonwealth was rich in most.

The properties of many new metals had not yet been fully investigated and he thought the future health of the mining and metallurgical industries depended to a great degree upon their scientific development.

THE SCHOOL HAS PLAYED ITS PART

"Are we carrying out sufficient research into metal refining and into the new metals?" he asked. "Are we producing throughout the country as a whole enough technologists to master the new processes as they are developed? In these two fields the School has played, is playing, and will continue to play its part.

"If British people can increase control of the world's deposits of minerals there is every reason for doing so and every reason for the government to help them do it. I have no hesitation in saying that wealth or power in the possession of British peoples is less likely to be abused than in the hands of any other nation on the earth."

Col. C. E. Temperly, replying, adopted a phrase of Mark Twain, in describing a mine as a hole in the ground owned by an optimist. "If any government takes from the optimist the reward he should receive for his optimism we shall have no optimists. If we have no optimists we shall have no mines, and if we have no mines we shall have no civilization," he said.

In a most felicitous speech Professor C. W. Dannatt, Dean of the School, proposed the toast of The Guests, to which The Hon. T. W. White (High Commissioner for Australia) and Professor E. D. Adrian (President of the Royal Society) replied.

The company at the banquet numbered over 220. The names of those students of the School both past and present who attended together with those of the principal guests will be found elsewhere in this issue on page 422.

REVIEWS

Canadian Mines Handbook, 1951.—*Toronto: Northern Miner Press, Ltd., 122, Richmond Street West. Pp. 351. 5¼ in. x 7¼ in. No price stated.*

The Canadian mining industry is growing bigger. Canadian mines are thriving, and busily at work in the greatest expansion period in their history. The next few years will see many new records; records made possible by growing output of copper, iron, lead, nickel, oil, silver, sulphur, uranium, zinc and other minerals. In its younger days the industry was content to start new ventures and, later, to expand them—in modest fashion. But the second half of the twentieth century finds capital more confident, mining operations more skilled, and people at home and abroad more sure of the greatness of Canada's future.

These are the conclusions reached from a study of the 1951 edition of the *Canadian Mines Handbook,* just published. Signs of prosperity and growth can be seen in almost every mining camp along the 4,000 mile trail from Newfoundland to British Columbia and the Yukon. The list of expanding mines would include old-timers like Asbestos Corp., Buchans, Wabana, Noranda, Falconbridge, International Nickel, Algoma Ore, Lamaque, and Consolidated Smelters; newer ones like Allard Lake, Steep Rock, Giant Yellowknife, United Keno, and Quemont. Newcomers will include mines like Iron Ore Company of Canada, Gaspe Copper, Sherritt-Gordon's Lynn Lake, Eldorado's Goldfields property, Mindamar, Cominco's three base metal juniors, Barvue, and a score of others; many of them smaller, but all potentially profitable.

From the standpoint of prospecting and development, activity has been widespread. Camps like Cobalt, Sudbury, Newlund, Barraute, Chibougamau, Gaspe, Goldfields, Keno Hill, have perhaps been most in the headlines, but many others have been active, too, as the industry sought to expand its potential.

The total number of producing mines in Canada is now 159, up from 149 a year ago. They include 82 straight gold mines, 45 base metal producers, and 32 others, not counting coal. More than 300 other companies are active in exploration or development.

New mining incorporations since mid-1950 total 175, while 90 companies have been revived to start new programmes of work. In the previous year there were 218 new companies and more than 100 revivals, the decline in these totals being attributable to the lessened interest in prospecting for gold. The Handbook now lists 9,081 companies, an all-time record. Of these 865 are carried in the active section, while 8,216 companies are listed as passive.

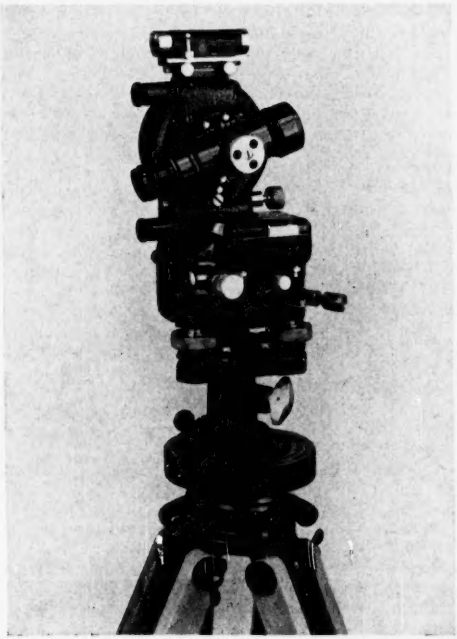
The Directory of Directors 1951.—1951, *London: Thomas Skinner & Co. (Publishers) Ltd., 330, Gresham House, Old Broad Street, London, E.C.2. Pp. 788. 6 x 10 in. Price 41s. (post free).*

The seventy-second annual edition of the well-known Directory of Directors has just been published. It carries a substantial increase in the number of names, although deletions through death or retirement, have been heavy. The changes involve upwards of 5,000 entries and the total of names is approximately 35,000. The directorships of a number of private companies are included, and the official connections of directors with important business associations and institutions, where possible, have been indicated. Additional notices and corrections received while the book was in the press, appear at the end of the volume, demand for which had, according to the publishers, been so heavy, that this edition is already entirely sold out.

Machinery & Equipment

Hilger & Watts' Microptic Transit

The Microptic Transit (simple mining pattern) made by Hilger & Watts, Watts Division, 48, Addington Square, London, S.E.5, is a new instrument stated to be suitable for all but the most precise underground surveys. It has a general reading accuracy of one minute. Traverses can be made to an accuracy of 1: 3,000 and it can be used for trigonometrical levelling and aligning roadways, tacheometry and simple surface surveying.



The Microptic Transit (ST. 192) made by Hilger & Watts, London

Several versions permit the choice of a model most suited to the surveyor's particular needs. The simplest form, ST.188, is suitable for colliery work, whereas ST.192, with its normal 3-screw levelling base and ball head tripod with centering movement, has a more general application. A number of these instruments is already in use in N.C.B. collieries, South African mines and elsewhere. In fact, the company's South African agents have recently completed a series of underground tests with these instruments, and have established that, using the normal face left and face right technique, a single series of observations gives the accuracy of 30 seconds in the measurement of an angle. Both models can be interchanged with lamp cups or sighting targets. The third version, ST.190, mounts on a standard tripod with $\frac{5}{8}$ in. diam. centre screw. This is intended for surface work, but it can be supplied with a wooden mining tripod, although not with lamp cups or targets.

The telescope has quick focusing, and gives a sharp, brilliant image. Observations can be taken up to 60° elevation and depression. The telescope is air-tight. The graticule can be illuminated easily, and is fitted with a cover glass so that the markings are permanent.

Both circles are similarly protected from dust and moisture by cover glasses. Graduations are at five minute intervals, read easily to one minute, and figuring is 0-359° (0-399 g.), the vertical circle reading zero when the telescope is in the horizontal "face left" position. The horizontal circle is mounted on a separate bearing so that it may be set to read zero. The light weight body enclosing the circles has been rendered dust-proof.

The circle reading microscopes fit directly into the upright and lock into position. Circles and telescope graticule are illuminated by holding the lamp near the left side of the instrument.

The platform on the right of the instrument carries two spirit levels, geometrically mounted at right angles to each other and covered by a transparent non-breakable shield. Each bubble can be adjusted by an external screw which can be locked.

Upper and lower clamps are provided for upper and lower tangent screws. The upper tangent screw has a safety lock for changing stations when traversing. For special cases where extra steep sights are required, a side-eccentric telescope can be fitted, but only if specified at the time of ordering the Transit.

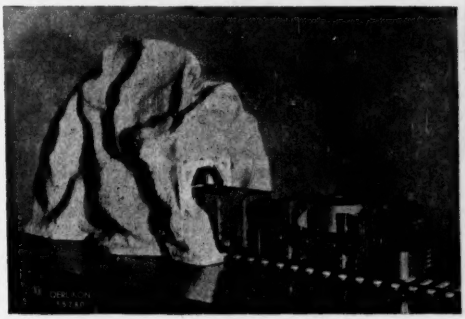
Each instrument is supplied in a metal case in which it is rigidly secured in the horizontal position on rubber-cushioned packings.

Abridged specifications are:

Circles:			
Diameter	3 in.	Maximum elevation	60°
Graduation interval	5′	Maximum depression	60°
Figuring interval ...	1°	Weight (ST. 192, 193):	
Smallest reading ...	1′	Instrument ...	7 lb.
Telescope:		Case with accessories	7 lb.
Aperture of objective	1 in.	Tripods	9 lb.
Total length ...	4.6 in.	Dimensions:	
Field of view ...	3½°	Height above tripod head	8 in.
Magnification ...	× 10	Tripod, folded ...	2.1 ft.
Shortest focusing distance	4.5 ft.	Tripod, extended ...	3.1 ft.
Stadia lines ...	1 : 50	Size of case	11 in. × 6 in. × 7 in.

Gyro Mine Locomotives for South African Gold Mines

Oerlikon Ltd., electrical engineers and contractors, whose works are located at Oerlikon, near Zurich, have been carrying out intensive development work on gyro electric vehicles during the past year or two. The company's gyro-buses have been tested successfully in various



A Scale Model of the Oerlikon Gyro Mine Locomotive

Swiss towns covering a distance of 10,000 kilometres and carrying some 50,000 passengers. Consequently, Oerlikon Ltd. has commenced production of gyro mine locomotives, and it is reported that three of these gyro mine locomotives have been ordered by two South African gold mines.

Metals, Minerals and Alloys

The U.S. Congress rose last week-end after passing the revised Tax Bill and will not re-assemble again until January 8. Various measures pending in Congress were hurriedly pushed through, but whether the zinc import duties suspense Bill was among the number we do not yet know; however, lead and zinc scrap prices have been raised 2c. By the time Congress re-assembles, new contracts and wage advances, especially for the C.I.O. steel workers, with all their repercussions on industry and the Defence Programme, may become a compelling issue. The C.I.O. policy committee is meeting at the middle of next month to draft its demands.

Copper.—Mr. Fleischmann, Defence Production Administrator, stated last week that the copper stockpile is still "quite inadequate and below the peril point" in the event of an all-out conflict, and he advised non-essential users to convert to some other material. He described the copper situation as worse than that in steel or aluminium and without prospect of any early improvement. He foreshadowed the probability of further withdrawals from stockpile to keep the Defence Programme operating. U.S. imports for the first eight months of the year including scrap were only 330,743 s.tons compared with 452,002 in the same period last year. Despite an announcement by the O.P.S. that no increased price ceiling is contemplated for domestic primary metal, dealers continue to withhold scrap from the market.

Exports from Chile in September totalled 19,626 tonnes compared with 28,673 tonnes in August and 27,497 in September, 1950. The International Materials Conference's cut in Australian allocations threatens the closing of many factories dependent on non-ferrous metals. After the middle of next year the starting of the copper smelter at Mount Isa should almost double current production of some 15,000 tons a year. Additional production in Queensland is estimated at 17,000 tons. Current consumption is put at 41,000 tons.

U.K. imports of copper in September were: 32,292 tons (15,032 electro, and 17,260 blister), against 30,370 tons in August. The bulk of the supply was from Northern Rhodesia. The output from N. Rhodesia in August was 21,496 tons, slightly less than in July.

Lead.—The critical situation in the lead supplies of the U.S. has been accentuated by a strike at the Herculaneum smelter of the St. Joseph Lead Company which normally produces some 5,000 s.tons of corroding grade lead monthly. The actual situation is described as about the worst ever experienced. What adds to the difficulty of the situation is the decline of imports into the U.S. this year. The figure for the first eight months is 118,971 s.tons of pig lead (277,312 for eight months last year) and 43,056 s.tons of concentrates against 47,575.

U.K. imports in September were: metal, 12,065 tons (August, 27,508) of which 7,165 came from Australia; concentrates totalled 21,032 tons divided between Australia and Canada.

Tin.—There is no information this week as to the progress of the U.S.-Bolivian discussions. It has been officially asserted in Washington that the U.S. is amply supplied with tin and that a statement that the stockpile objective had been lowered might be issued shortly. Perhaps the most suggestive fact regarding the export of Bolivian concentrates emerges from the Board of Trade's figures of imports of concentrates into this country during September. These show that the receipts from Bolivia during last month amounted to 6,633 tons, bringing the arrivals for the nine months to 26,449 tons against 23,443 tons for the same period last year. Obviously, therefore, Bolivian concentrates are not being stacked in Pacific coast ports and the importance of a free tin market to Bolivia is shown. The Texas Smelter is reported to have sold accumulated stocks of flotation froth to the A.S. & R. Bolivian exports in August were 2,395 tons (July, 2,809).

Output of concentrates in Malaya in September was equivalent to 4,645 tons of tin as compared with 4,923 tons in August. This makes the total production for the nine months 42,490 tons compared with 43,363 in the same period of last year. Congo production was 1,351 tons. U.K. imports of tin metal in September were 1,732 tons (1,344 in August).

Zinc.—U.S. imports for the first eight months of this year are well below those for the same period of 1950, amounting to 60,104 s.tons against 107,621 s.tons; concentrates, however, were higher at 203,966 s.tons against 171,734. The Government has made an agreement with National Lead for future delivery of 20,000 s.tons of slab zinc from deposits near Monterrey, Mexico, where a concentrating plant is to be built and the concentrates processed at Bartlesville, Oklahoma.

U.K. imports of zinc in September were 11,222 tons (August, 9,255), rather more than half from Canada. Imports of concentrates were 21,032 tons (28,301 in August).

Aluminium.—U.S. output of aluminium in August improved to 73,816 s.tons as compared with 72,698 in July. This brings the total for the first eight months of the year to 550,106 s.tons compared with 468,090 s.tons in the same period last year.

U.K. imports of aluminium in September were 21,078 tons (21,657 tons in August). Bauxite imports were 20,905 tons in September (52,793 in August).

Antimony.—Imports of ore and concentrates into the U.K. improved markedly in September to 3,363 tons, as compared with 1,127 in August. Shipments so far this year are nearly double those of 1950.

Asbestos.—The U.K. imports of asbestos in September were 13,781 tons compared with 7,679 tons in July. Canada and S. Rhodesia were the two chief importing countries.

Cadmium.—U.K. imports of cadmium in September were 67,239 lb., against 221,928 lb. in August.

Magnesite.—Imports into the U.K. in September were 665 tons compared with 3,210 tons in August.

Manganese.—U.K. imports in September were again heavy at 42,301 tons (34,867 in August). Arrivals in the first nine months of the year are now slightly ahead of the same period last year.

Mica.—Imports of slab mica into the U.K. in September were 61 tons (47 in August) and 482 tons in splittings (260 in August).

Molybdenum.—U.K. imports of molybdenite in September were 678 tons compared with 424 tons in August and the total to date now exceeds that of the nine months of 1950.

Nickel.—U.K. imports of metal and alloys in September were 716 tons (August, 344 tons); concentrates and matte totalled 2,644 tons against 1,723 tons in August.

Quicksilver.—U.K. September imports of quicksilver were only 9,922 lb. as compared with 235,688 lb. in August.

Sulphur.—The International Materials Conference has allotted the U.K. 102,300 tons of sulphur for consumption in the current quarter of which 101,000 tons is to be imported. This is below the current rate of imports which in September were 41,040 tons almost entirely from the U.S. Pyrites imports were 65,263 tons (23,833 in August).

Tantalum.—The Governor of British Guiana, Sir Charles Wooley, announced on October 20 that the Colonial Secretary had approved various projects for development in the Colony including an authorization to Willems Industries Inc. to mine for columbite and tantalite backed by Marshall Plan funds.

Titanium.—U.K. imports of ilmenite in September were 2,750 tons (5,530 in August).

Tungsten.—There is again no news of any importance with regard to wolfram in this country and the price continues unchanged at 525s. per unit c.i.f.; no increase in price seems in sight so far. There is a rumour, for what it is worth, that the Ministry of Materials has agreed to accept lower grade material from Portugal with the higher grade going to the U.S.

The U.S. Department of the Army stated in Washington at the week-end that the Republic of Korea is now supplying its entire output of tungsten concentrates amounting to some 200 tons a month to the U.S.

U.K. imports of tungsten concentrates in September were 632 tons (342 tons in August). Portugal was the chief supplier with 292 tons followed by Bolivia with 144, and Burma with 48.

The London Metal Market

(From Our Metal Exchange Correspondent)

The past week has seen a continuation in the rise in the tin price accompanied by an appreciable narrowing of the backwardation. With the stocks in official warehouses in the U.K. now standing at well over 2,000 tons, the latter development is not surprising but it is still a mystery as to who is buying tin in Singapore, as it is the buying on that market which has been the chief cause of the rise.

There have been no new developments in America, either with regard to the reopening of talks between the R.F.C. and the Bolivians, or in any announcement reducing the stockpile target, but statements continue to be made about America's unwillingness to re-enter the tin market until she can obtain material at her own valuation. It must seem very peculiar to American consumers to be rationed for tin with the existing stocks in their country probably more than tenfold those usually held before the war, and with world production running at a rate in excess of consumption of over 20,000 tons per annum. Perhaps those members of the trade who have been summarily ejected from business may one day be able to convince their authorities that the present policy, apart from harming their own industry, is also building up in the producing countries a store of ill will against the United States.

On Thursday the official close on the tin market was: Settlement price £1,020, Cash Buyers £1,017 10s., Sellers £1,025; Three months' Buyers £985, Sellers £987 10s. In the afternoon the market was quiet and slightly easy. Turnover for the day was 65 tons. Approximate turnover for the week was 565 tons.

The Eastern price on Thursday morning was equivalent to £1,014 15s. per ton, c.i.f. Europe.

Iron and Steel

Markets this week have been in a state of suspended animation, for which the general election is only partially responsible. The principal reason for the extremely limited turnover in iron and steel is the fact that producers are already over-sold, and merchants have little material to offer. The Chancellor of the Exchequer has again proclaimed that one of the greatest problems was getting enough steel. He was, of course, referring to the domestic situation, but in point of fact the shortage is world wide. At home substantial tonnages are now being taken up for re-armament, other industrial requirements have increased, the Dominions are clamouring for more steel, and this country is already committed to provide more steel under the bi-lateral trade agreements.

No information has yet been vouchsafed regarding the allocations of iron and steel when controlled distribution comes into operation on December 3. Presumably, unless new authorizations are obtained, current contracts which are not completed on that date will have to be cancelled. In that event cancellations will be on a considerable scale, as the works are in arrears with their deliveries.

The current rate of production moreover is running well below that attained in the first half of the year. Coal is the crux of the problem. With more fuel available, production could be speeded up. Progress in this direction however is slow. Blast furnace outputs are on a better scale, but most of the extra tonnage is absorbed by the steel plants, and little of it reached the foundries whose requirements are far from fully satisfied.

A fair amount of pig iron has been imported in recent months, but foreign iron is now almost unobtainable and prohibitive prices are quoted. Nor is there any improvement in the arrivals of semi-finished steel from Continental ports. In the past the re-rolling industry has depended to a large extent upon imported steel semis and now that these external sources of supply are drying up, it is difficult to obtain from home sources the material necessary to keep the re-rolling mills in full employment.

Pressure for sheet steel is intense, but some of the sheet mills are working below capacity through the shortage of sheet bars and slabs, and the heavy rolling mills are overwhelmed with orders. Even high priority users are kept waiting for steel, and all the indications are that the supply problem will be accentuated as the winter advances.

OCTOBER 25 PRICES

COPPER

Electrolytic	£227 0 0 d/d

TIN

(See our London Metal Exchange report for Thursday's prices)

LEAD

Soft foreign, duty paid	£175 0 0 d/d
Soft empire, including secondary lead	£175 0 0 d/d
English lead	£176 10 0 d/d

ZINC

G.O.B. spelter, foreign, duty paid	£190 0 0 d/d
G.O.B. spelter, domestic	£190 0 0 d/d
Electrolytic and refined zinc	£194 0 0 d/d

ANTIMONY

English (99%) delivered, 10 cwt. and over	£390 per ton
Crude (70%)	£305 per ton

NICKEL

99.5% (home trade)	£454 per ton

OTHER METALS

Aluminium, £124 per ton.	Platinum (scrap), £33.
Bismuth, 28s. lb.	Platinum, £27/£33 5s. nom.
Cadmium, 18s. 9d. lb.	Rhodium, £45 oz.
Chromium, 6s. 3d. lb.	Ruthenium, £30 oz.
Cobalt, 17s. 6d. lb.	Quicksilver, £73 10s./£74 ex-warehouse.
Gold, 248s. f.oz.	
Iridium, £65 oz. nom.	Selenium, 25s. nom. per lb.
Magnesium, 1s. 6d. - 2s. lb. according to quantity.	Silver (bar), 77d. f.oz. spot and forward.
Osmiridium, £35 oz. nom.	Tellurium, 19s. lb.
Osmium, £70 oz. nom.	
Palladium, £8 10s. oz.	

ORES, ALLOYS, ETC.

Bismuth	60% 17s. lb. c.i.f. 50% 16s. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (lumpy)	£13 per ton c.i.f.
,, ,, (concentrates)	£13 per ton c.i.f.
,, ,, Refractory	£12 12s. per ton c.i.f.
Baluchistan Metallurgical	£13 18s. 6d. per ton c.i.f.
Magnesite, ground calcined	£26 - £27 d/d
Magnesite, Raw	£10 - £11 d/d
Manganese, Best Indian	(Nominal)
Molybdenite (85% basis)	103s. 1½d. per unit c.i.f.
Wolfram (65%), U.K.	525s. nom. c.i.f.
Tungsten Metal Powder (for steel manufacture)	35s. nom. per lb. (home)
Ferro-tungsten	33s. nom. per lb. (home)
Carbide, 4-cwt. lots	£30 3s. 9d. d/d per ton
Ferro-manganese, home	£40 8s. 9d. per ton
Ferro-manganese, export	Nom.
Brass Wire	2s. 7½d. per lb. basis.
Brass Tubes, solid drawn	2s. 1d. per lb. basis.

The Mining Markets

(By Our Stock Exchange Correspondent)

Markets remained firm during the week in the face of political uncertainties at home and a rather bleak international situation. By the time that this copy of *The Mining Journal* is in readers' hands, the result of the General Election will be known, and domestic doubts settled one way or the other.

The Kaffir section though generally quiet was steady, and in some places useful advances were recorded. West Rand Investment Trust were in demand on the optimistic outlook for the mines in this group. Henderson's Transvaal were also a feature. The demand for these shares stems from the possibilities of the copper property owned by the company adjacent to Messina Transvaal Copper. The easier tendency in other leading Rand Finance houses is attributed to cessation of buying on French Accounts. This follows the dying down of the scare over the possible devaluation of the French franc.

Among individual mines Doornfontein rose following the start of dealings in the new shares for special settlement on November 12. West Driefontein responded to increased interest. The quarterly report is expected at the end of this week, and the "heaviness" of the shares has inspired rumours that they may well be split in the not too distant future. Western Reefs were again favoured, further consideration of the long-term possibilities disclosed in the quarterly report being responsible for this trend.

West African producers mostly gained the turn on further rumours that an announcement of policy concerning premium sales was imminent. This is expected to follow the 40 per cent lead established by other Commonwealth producers. The free gold price of world markets again eased this week, the latest quotation from continental centres being $38¼ to $38¾. Reports from Daar-es-Salaam indicate keen disappointment with the 40 per cent policy in Tanganyika.

In an otherwise dull Australian gold share market, Great Western Consols jumped on reports of good developments on the property. On the other hand, Barriers and lead/zinc shares generally responded smartly. The possibilities for companies in this group were underlined by the big earnings disclosed by North Broken Hill. While the preliminary figures announced some weeks' ago were very good, the full balance-sheet reveals the real strength of the position. Burma Corporation improved following market reaction to the news of a raprochement with the Burmese Government, details of which were given last week.

The focal point of interest in mining markets this week were the dividends announced by Rhokana and its controlling company Rhodesian Anglo American. The former company declared a final dividend of 150 per cent making 200 per cent for the year against a total of 120 per cent last year. One half of this payment is tax free and the remainder taxed at a reduced rate. Rhodesian Anglo American declared a final dividend of 45 per cent, making a total of 55 per cent for the year against 32½ per cent. The same tax conditions apply as for the Rhokana distribution. Two important factors are pointed out by the boards. Firstly, the tax free provisions are due to the change of domicile available only for the past year, and will not occur again. Secondly, the dividends have been declared without regard to the provisions of the proposed legislation on dividend limitation. In the event of this becoming law, alterations in the rate paid will have to be made either before or at the annual general meetings.

Eastern tin shares have attracted attention as "election" stocks. Many of these companies are capable of higher dividend distributions, and investors counting on the return of a Conservative majority have shown considerable interest in this market.

FINANCE	Price Oct. 24	+ or − on week
African & European	3¼	+ ⅛
Anglo American Corpn.	8⅛	− ⅛
Anglo-French	23/9	.....
Anglo Transvaal Consol.	40/-	+1/3
Camp Bird	13/10½	+4½d
Central Mining (£1 shrs.)	47/6	.....
Consolidated Goldfields	52/1½	.....
Consol. Mines Selection	36/3	+1/10½
East Rand Consols	4/3	.....
General Mining	6	⅛
H.E. Prop	39/4½	+7½d
Henderson's Transvaal	15/3	+3/-
Johnnies	3¼	− ⅛
Rand Mines	7½	.....
Rand Selection	2⅛	+ ⅛
Union Corporation	10⅜	.....
Vereeniging Estates	5⅛	.....
Wits	35/7½	+3/1½
West Wits	47/-XR	+2/-
RAND GOLD		
Blyvoors	52/6	+3d
Brakpan	20/-	−3d
City Deep	2¼	.....
Consol. Main Reef	2½	− ⅛
Crown	4⅛	.....
Daggas	3⅜	.....
Dominion Reefs	1/9	.....
Doornfontein	25/9	+1/-
Durban Deep	3⅜	− ⅛
E. Daggas	26/10½	.....
E. Geduld ... (4/- units)	53/9	.....
E. Rand Props	4⅛	+ ⅛
Geduld	7⅛	− ⅛
Grootvlei	39/4½	.....
Libanon	16/-	+6d
Luipaards Vlei	23/6	+3d
Marievale	23/6	+6d
Modderfontein B	4/9	.....
Modderfontein East	36/3	−1/3
New Kleinfontein	35/7½	+2/6
New Pioneer	21/3	+7½d
Randfontein	19/3	.....
Robinson Deep	15/9	+3d
Rose Deep	37/6	.....
Simmer & Jack	7/-	.....
Springs	10/-	−3d
Sub Nigel	3⅛	.....
Van Dyk	14/9	−3d
Venterspost	30/-	+6d
Vlakfontein	18/9	+6d
Vogelstruisbult	29/3	+6d
West Driefontein	6⅜	+ ⅛
W. Rand Consolidated	46/10½	.....
Western Reefs	43/9	+7½d
O.F.S.		
Alpha F.S.A.	10/9	−3d
Blinkpoort	22/6	.....
Central Mining F.S.	4/9	.....
Freddies	11/9	.....
Freddies N.	11/-	.....
Freddies S.	12/9	.....
F.S. Geduld	3⅜	+ ⅛
Geoffries	25/6	.....
Harmony	23/3	.....
Lydenburg Estates	10/6	.....
Middle Wits	23/3	−3d
Ofsits	46/10½	+7½d
President Brand	20/9	−3d
President Steyn	19/3	+9d
St. Helena	28/9	+1/3
U.F.S.C. & G.	8/6	.....
Virginia Deb.	76	.....
Virginia Ord.	12/9	.....
Welkom	38/9	.....
Western Holdings	3⅜	− ⅛
WEST AFRICAN GOLD		
Amalgamated Banket	2/4½	+1½d
Ariston	7/4½	+1½d
Ashanti	30/9	+9d
Bibiani	10/4½	+3d
Bremang	3/1½	.....
G.C. Main Reef	30/10½	+1½d
G.C. Selection Trust	9/6	.....
Konongo	3/10½	+1½d
Kwahu	5/-	.....
London & African Mng.	2/4½	−1½d
Lyndhurst Deep	1/10½	+1½d
Marlu	2/1½	.....
Nanwa	6d	.....
Taquah & Abosso	8/-	+4½d
AUSTRALIAN GOLD		
Boulder Perseverance	3/3	+1½d
Gold Mines of Kalgoorlie	13/3	−2/9
Great Boulder Prop	8/-	+3d
Great Western Consol.	6/6	+2/9
Lake View and Star	22/6	−3d
Mount Morgan	19/-	−3d
North Kalgurli	18/9	−3d
Paringa	10½d	.....
Sons of Gwalia	12/6	.....
South Kalgurli	8/9	.....
Western Mining	8/9	.....
Wiluna	13/-	.....
MISCELLANEOUS GOLD		
Cam and Motor	37/6	−1/10½
Champion Reef	8/6	−9d
Falcon Mines	11/-	.....
Globe & Phoenix	24/9	−3d
MISCELLANEOUS GOLD (cont:d)		
G.F. Rhodesian	8/3	−3d
London & Rhodesian	6/6	+10½d
Motapa	3/-	−3d
Mysore	11/9	−6d
New Guinea	1/9	.....
Nundydroog	6/6	−4½d
Ooregum	3/-	.....
Oroville	14/6	−4½d
St. John d'El Rey	40/7½XD	−10½d
Zams	40/-	.....
DIAMONDS		
Anglo American Inv.	5⅜	+ ½
Casts	44/3	+2/6
Cons. Diam. of S.W.A.	4⅜	+ ½
De Beers Defd. Bearer	74/3	+2/-
De Beers Pfd. Bearer	16½	.....
COPPER		
Chartered	75/3	−1½d
Indian Copper	4/1½	.....
Messina	6⅛	+ ⅛
Nchanga	6⅜	+ ½
Rhod. Anglo-American	73/-	+3/-
Rhodesian Selection	22/9	+9d
Rhokana	27	+2½
Rio Tinto	25½	+ ½
Roan Antelope	14/-	.....
Selection Trust	53/1½	−1½d
Tanks	59/-XD	+9d
Tharsis Sulphur Br.	52/6	−1/3
TIN (Eastern)		
Anglo-Burma	3/6	+9d
Ayer Hitam	28/9	+3d
Bangrin	15/9	+3/6
Gopeng	11/6	+6d
Hongkong	32/6	.....
Ipoh	7 14/1½	+3d
Kamunting	13/4½	−3d
Kepong Dredging	17/9	.....
Kinta Tin Mines	4/3	−3d
Kramat Pulai	23/6	−3d
Malayan Dredging	18/6	+7½d
Pahang	11/6	.....
Pengkalen	14/10½	+7½d
Petaling	17/6	.....
Rambutan	28/-	+2/-
Siamese Tin	15/3	+3d
Southern Kinta	30/-	+3d
S. Malayan	26/3	−1½d
S. Tronoh	32/-	+1/3
Sungei Kinta	21/3	.....
Tekka Taiping	10/9XD	.....
Tronoh	32/-	.....
TIN (Nigerian and Miscellaneous)		
Amalgamated Tin	11/1½	+1½d
Beralt Tin	28/-	+1/-
Bisichi	4/3	.....
British Tin Inv.	19/1½	+4½d
Ex-Lands Nigeria	7/4½	+1½d
Geevor Tin	17/-	+6d
Gold & Base Metal	5/4½	+9d
Jantar Nigeria	8/6	+1½d
Jos Tin Area	11/3	+1½d
Kaduna Prospectors	4/-XD	.....
Kaduna Syndicate	5/9	−3d
London Tin	6/10½	+3d
Ribon Valley	1/3	.....
United Tin	3/4½	+3d
SILVER, LEAD, ZINC		
Broken Hill South	62/9	+1/6
Burma Corporation	4/7½	+10½d
Consol. Zinc	37/6	+2/6
Lake George	28/9	+1/9
Mining Trust	8/3	+6d
Mount Isa	54/6	+4/-
New Broken Hill	32/6	+2/3
North Broken Hill	81/9XD	+2/9
Rhodesian Broken Hill	23/3	+1½d
San Francisco Mines	35/9	−6d
Trepca	3/10½	.....
MISCELLANEOUS		
BASE METALS & COAL		
Amal. Collieries of S.A.	60/-	.....
Associated Manganese	68/3	−1/6
Chinese Engineering	3/-	.....
C.P. Manganese	49/-	+6d
Natal Navigation	5⅛	.....
Wankie	25/-	.....
Witbank Colliery	3⅜	− ⅛
CANADIAN MINES		
Dome	$33	−2
Hudson Bay Mining	$125	.....
International Nickel	$87	−1½
Mining Corpn. of Canada	£7½	.....
Noranda	$167	+2
Quemont	£9½	−½
OIL		
Anglo-Iranian	5⅞	+ ⅛
Apex	47/6	−7½d
Attock	23/9	.....
Burmah	63/9XD	.....
Canadian Eagle Bearer	37/9	+1½d
Mexican Eagle	27/6	+3d
Shell	4⅜	+ ⅛
Trinidad Leasehold	33/3	+10½d
T.P.D.	36/3	−7½d
Ultramar	38/6	+1/6

Company News & Views

Rhokana and Rhoanglo's Payments Exceed Expectations

Although the market expected substantially better results from Rhokana Corporation in respect of the year ended June 30 last over the preceding year, the latest announcement that its distribution is to be raised to 200 per cent against 120 per cent went beyond the most optimistic anticipations. The net profit of the Corporation advanced by no less tan £5,033,674 to £8,130,616, and this figure it should be noted, allows for the writing back in respect of former taxation credits an amount of £1,365,221. Thus, profits before tax at £6,765,395 were more than double the previous year's earnings of £3,073,858.

These impressive results have, of course, made it possible for the company to raise its dividend to 200 per cent against 120 per cent, but since one half of the distribution payable is tax free, a truer assessment of the dividend rate, assuming tax at 9s. 6d., would be just over 290 per cent against the 120 per cent paid previously.

Similar circumstances affect the higher dividend payments made for 1950/51 by Rhokana's controlling company, Rhodesian Anglo American, which is increasing its final dividend to 45 per cent on the 10s. stock units, making a total of 55 per cent against 32½ per cent for the previous year. One half of this company's payments in the past year are also tax free. The group profits before taxation of Rhodesian Anglo American also advanced sharply being £14,819,139 against £7,985,033 and even allowing for higher taxation amounting to £5,627,338 (£4,328,765), group net profits figured at no less than £9,191,801 compared with £3,656,268. The net profit attributable to "Rhoanglo" was £3,310,320 against £1,090,051.

Both the Rhokana and the "Rhoanglo" final dividends, it is stated, have been made without taking into account the proposed U.K. legislation to limit dividends and they are, therefore, subject to modification prior to, or at the annual general meeting.

The latest Rhokana results to June 30 last compared with the previous year, are given below, as are the results of the parent company, Rhodesian Anglo American.

Rhokana:

Year to June 30	Profit*	Taxation	Net Profit	Tax provn. not required	To Reserve	Ordinary Dividend
	£	£	£	£	£	£
1951	10,483,687	3,718,292	6,765,395	1,365,221	2,500,000	5,000,004
1950	6,687,165	3,613,307	3,073,858	23,084	1,400,000	1,650,002

*Before tax.

Rhodesian Anglo American:

Year to June 30	Group Profit*	Taxation	Group Net Profit	Tax provn. not required	Attrib. to "Rhoanglo"†	Retained in Subsids.
	£	£	£	£	£	£
1951	14,819,139	5,627,338	9,191,801	1,554,398	5,197,704	1,887,384
1950	7,985,033	4,328,765	3,656,268	214,182	1,894,996	804,945

*Before tax.
†Net profit of "Rhoanglo" 1950/51 was £3,310,320 (£1,090,051)

Blyvoors Increased Output

Shortage of labour prevented Blyvooruitzicht Gold Mining from achieving maximum output from its plant during the year to June 30, 1951.

Year to June 30	Milled (tons)	Yield (oz.)	Grade (dwt.)	Profit per ton* s. d.	Ore Reserves (tons)	(dwt.)
1951	1,093,000	772,268	14.13	137 9	5,517,000	13.0
1950	926,000	684,178	14.77	133 2	5,960,000	13.1

*Includes sales of gold at premium prices.

Even so, operating results were eminently satisfactory. Tonnage crushed increased by 167,000 tons and although the yield per ton decreased fractionally, total output rose by 88,090 oz. Revenue per ton amounted to 183s. 2d., an advance over the previous year of 4s. 11d. which was due in part to the higher price of gold being operative throughout the whole of the year and in part to the additional revenue of £385,738 received for the portion of output sold at premium prices.

Year to June 30	Working Revenue	Working Costs	Taxation*	Net Profit	Dividend	Carry Forward
	£	£	£	£	%	£
1951	10,007,728	2,434,912	3,930,352	3,634,251	106¼	943,899
1950	8,254,759	2,044,196	2,397,921	3,220,185	100	509,648

*Including mineral lease consideration.

The lower ore reserves figure is attributable to the considerable amount of subsidiary development carried out in faulted zones where only a small but high grade tonnage was added to the reserves.

The improved results were reflected in the profit and loss account. Working revenue was £1,752,969 better than the previous year, working costs were held down to a modest 4d. per ton increase to 45s. 5d. per ton but taxation was heavier owing to the higher taxable income, the 5 per cent increase in the tax formula and the raising of the rate from 4s. to 4s. 6d. in the £ as from January 1, 1951. However, this did not prevent the dividend from being stepped up and the carry forward from being considerably strengthened.

Total footage advanced was 41,056 ft. (35,741 ft.), the footage sampled being higher by 6,515 ft. at 20,620 ft. of which 97.9 per cent proved payable averaging 50.5 dwt. over a channel width of 12 in. equivalent to 606 in.-dwt. which was 107 in.-dwt. higher than the previous year's average.

Capital expenditure during the year amounted to £722,323 which, together with the £168,978 expended on the uranium plant, brought the total to £891,301. During the current year capital expenditure—apart from expenditure incurred on the erection of the uranium plant—will be approximately £800,000, mainly for winding and pumping equipment for the incline shafts.

Since the end of the financial year, tonnage crushed per month has been in excess of 100,000 tons so that if operating costs do not rise disproportionately, shareholders can look forward to even better results this time next year.

U.F.S. Coal & Gold's Interest in Harmony

Of the 5,523 claims making up the mining area of Harmony Gold Mining Co., Union Free State Coal & Gold Mines contributed 3,464 claims, the original cost of which was £79,193. These claims were ceded to Harmony in return for £125,445 and the right to subscribe or procure subscriptions at par for 4,014,240 shares of 5s. each of the 8,000,000 5s. Harmony shares issued. The company retained 1,801,005 of these shares, and offered its shareholders at par the remaining 2,213,005 shares in the ratio of three Harmony for every ten held taking up any shares not subscribed for by its shareholders. In this way it augmented its holdings by a further 17,940 shares, so that at the end of June last U.F.S.C. & G. held 1,818,945 shares in Harmony. Furthermore, during the year the company made available to Harmony loan facilities up to £800,000 of which £602,275 had been drawn at the end of June last. It has since drawn a further £250,000.

The profit and loss account for the year to June 30 shows the net profit realized on the sale of the lease area to Harmony of £46,252 as well as income from interest received on its loan to Harmony and to New Union Goldfields which together totalled £79,815. These were the principal items making up a gross revenue of £129,877 which compares with £12,070 in the previous year. Out-

going payments were higher chiefly due to the working loss incurred at Raleigh colliery of £20,815 (£10,783) and depreciation of vehicles, ventures, etc. of £25,567 against nil previously. The credit balance remaining of £58,207 was applied to extinguishing the debit balance brought forward last year of £16,630 and after paying out £7 for taxation the carry forward amounted to £41,570.

The explanation for the working loss at Raleigh Colliery of £20,815 was that the temporary screening plant installed restricted the tonnage throughput, although during the last quarter of the year the main preparation plant was not operating efficiently. Plans to install a wet screening unit have been put in hand since the end of June last.

Modder East Begins Work in "Klipfontein Corridor"

The whole of the Klipfontein quarter lying between Modder East and Holfontein has now been leased to Modderfontein East, it is announced in the report and accounts for the year ended June 30, 1951. Development in this area is proceeding as rapidly as mining conditions permit, although due to the distance from No. 2 shaft which serves the area, exploration will, it is stated, be slow.

Year to June 30	*Milled*	*Yield*	*Grade*	*Profit per ton**	*Ore Reserves*	
	(tons)	*(oz.)*	*(dwt.)*	*s. d.*	*(tons)*	*(dwt.)*
1951	1,457,000	174,225	2.39	9 3	3,414,000	3.1
1950	1,504,000	196,575	2.61	11 5	4,347,000	3.0

*Includes sales of gold at premium prices.

So far several drives have entered in the new area in the Northern sector. One payable zone was encountered, and a small block of ore was included in the reserve. As in the case of Consolidated Main Reef, the rise in working costs by 2s. 3d. to 21s. 9d. brought about a decrease in the available ore reserves of 933,000 tons as a consequence of having to raise the pay limit. This decision was necessary despite the fact that 83,109 was received during the year for its gold sold at premium prices, and the higher price obtaining for gold throughout the year. But these factors only had the effect of raising the average revenue per ton milled by 1d. to 31s.

Year to June 30	*Working Revenue*	*Working Costs*	*Taxation**	*Net Profit*	*Dividend*	*Carry Forward*
	£	£	£	£	%	£
1951	2,257,662	1,562,800	335,772	338,859	35	200,981
1950	2,321,791	1,440,256	417,410	417,373	40	185,852

*Including mineral lease consideration.

The profit and loss account reflected the results of the lower tonnage crushed and smaller output. Thus net profit, after taxation and mineral lease considerations, and all other expenses had been deducted, figured at £338,859 compared with £417,273. The dividend was also reduced to 35 per cent against 40 per cent but the carry forward was left higher at £200,981 compared with £185,852 previously.

Higher Costs Squeeze Ore Reserves at Consol Main Reefs

The year to June 30, 1951 was not a good year for Consolidated Main Reef Mines and Estate. Tonnage crushed declined by 135,000 tons, the yield was lower by 24,825 oz. and the rise in working costs per ton milled by 2s. 11d. rendered a substantial tonnage of low grade ore unpayable resulting in the available ore reserves at the year-end being lower by 948,000 tons.

Year to June 30	*Milled*	*Yield*	*Grade*	*Profit per ton**	*Ore Reserves*	
	(tons)	*(oz.)*	*(dwt.)*	*s. d.*	*(tons)*	*(dwt.)*
1951	2,261,000	305,179	2.7	6 10	5,094,000	3.3
1950	2,396,000	330,004	2.7	7 6	6,042,000	3.3

*Including sales of gold at premium prices.

Development work was undertaken in the more promising area of the mine thereby restricting development footage, this being lower by 14,422 ft. at 48,219 ft. The company is working five reefs, but on only two, South Reef and Main Reef were exposures satisfactory.

Year to June 30	*Working Revenue*	*Working Costs*	*Tax*	*Net Profit*	*Dividend*	*Carry Forward*
	£	£	£	£	%	£
1951	3,945,515	3,145,813	280,184	485,671	35	451,940
1950	3,918,256	2,986,152	288,709	530,849	40	428,915

Notwithstanding these results the fact that the higher price of gold was effective throughout the year and that the company received the sum of £146,654 in respect of its proportion of gold sold at premium prices, average revenue per ton milled rose by 2.3d. to 34s. 11d., partly offsetting the rise in working costs. The net result was that working revenue was £3,945,515 against £3,918,256. However, the higher working costs, the maintenance of other expenses at the previous year's levels together with an outgoing payment of £25,148 to meet the payment of the company's outstanding silicosis liabilities left the profit available for distribution lower than in the previous year. Accordingly, the dividend was reduced to 35 per cent against 40 per cent, but the carry forward was left better off at £451,940 against £428,915.

Selective Mining at Welgedacht

After placing £1,665 to abnormal costs reserve working profit of Welgedacht Exploration for the year to June 30 amounted to £70,535 (£77,740), from which was deducted £13,664, the difference between sundry items of expenditure and revenue, leaving a net profit of £56,871 compared with £10,645 previously. From the £67,717 (£10,641) available, the sum of £14,781 was applied to debenture redemption, leaving the carry forward at £52,936 compared with £10,641 in the preceding year.

Year to June 30	*Milled (tons)*	*Yield (oz.)*	*Grade (dwts.)*	*Profit per ton**	*Ore Reserves (tons)*	*Grade (dwts.)*
				s. d.		
1950	389,000	48,383	2.488	4 0	458,000	2.7
1951	396,500	45,988	2.320	3 7	513,500	2.6

*Including revenue premium gold sales.

During the year development footage was confined to the most promising localities and although the net result was a decline in the footage advanced by 4,396 ft. to 9,159 ft., this enabled the company to transfer some additional labour to stoping operations, thereby assisting to raise the tonnage milled by 7,500 tons.

The policy of selective mining carried out during the year resulted in a profitable mill grade being maintained, but it has, the directors state, involved increased sorting of waste, the continuance of which operation is dependent on an adequate supply of native labour. Although this has been satisfactory during the year under review they emphasize that any decline in the present labour force would have an immediate effect on the production and profits of the mine. Revenue from premium gold sales amounted to £21,616 constituting over 30 per cent of the total working profit.

Mawchi Mines: Two Years' Results

The accounts of the Mawchi Mines covering operations for two years to March 31, 1951, have now been published.

Mining operations ceased at Mawchi on June 30, 1949, since when concentrates obtained have been those purchased from native tributors. During the year 1949/50 sales were limited to 98 tons of mixed concentrates while for the year to March 31 last, tin sales effected totalled 67 tons mixed concentrates. Average metal prices realized for the latter tonnage were £740 13s. 6d. per ton tin (before deducting Smelters' Returning Charges) and 139s. per unit of wolfram. Concentrate stocks at Mawchi at March 31 last, amounted to 510 tons.

Year to Mar. 31	Tin Sales	Stocks Concentrates*	Net Profit†	Forward Balance
	£	£	£	£
1951	30,898	88,879	Dr.45,663	220,265
1950	35,875	103,615	Dr.62,736	265,928
1949	270,649	81,983	Dr.15,837	328,664

*At estimated cost.

†Losses have been charged to accumulated profit balances.

Fixed assets appear in the latest balance sheet at £378,064 (£382,496) of which machinery, equipment, buildings, etc. amount to £284,073 (£288,505). The war damage account was £268,669 against £264,863. A notice in the balance sheet states that the effect of hostilities in Burma and the serious deterioration in the condition of certain of the buildings and plant owing to non-usage, etc., during the past two years has not been taken into account. Mr. G. P. Joseph, chairman, states that these balance sheet figures will eventually need reviewing but the time is not now opportune. He also pointed out that of £150,000 5 per cent Convertible Notes issued in October, 1949, £86,020 had been converted by the end of March last, and a further £2,665 since that date.

Company Shorts

St. Helena Pours First Gold Bar.—The first gold bar to be produced from the new Orange Free State goldfields, was poured at the St. Helena Gold Mine earlier this week.

Great Western Consolidated has announced that at the Copperhead mine, scheelite has been found in the Northern Series, but at present there is insufficient evidence to form any opinion of its economic significance.

Rantau Tin Dredging have announced that the Commission has made an outright award of $20,000 in respect of tin ore lost in transit. Settlement of the award will not be made from the "Tin" pool but will be made from the allotment for claims falling under the heading of "Other" claims.

An interim dividend of 30% is payable on this award.

New O.F.S. Mine.—At the recent annual meeting of New Consolidated Free State Exploration, the chairman, Mr. J. M. M. Ewing, stated that there were good prospects for the creation of a new mine north of Harmony Gold in the region of farms Saaiplaas 551 and 690. However, the chairman added, the company could not be floated for some time.

Chendai Consolidated.—Profit of Chendai Consolidated for the year to April 30, 1951, amounted to £3,067 against £1,889 previously. From the £4,354 (£1,889) available, taxation required £1,476 (£63), the sum of £1,526 was written off capital expenditure leaving the forward balance higher at £1,351 compared with £1,283 at the end of the previous year.

Sione Tin (F.M.S.).—During the year to March 31, 1951, operations of the Sione Tin resulted in a loss amounting to £5,710 compared with a loss in the previous year of £5,332. Thus, the forward balance was further reduced and at the fiscal year end stood at £4,778. The directors have decided to work the property on tribute and actual mining operations are about to start.

Chibuluma Mines.—Chibuluma Mines has now been registered in Northern Rhodesia to acquire lands, farms, mineral and other properties, etc., and to enter into an agreement with Mufulira Copper Mines and the British South Africa Co. Capital of the new company is £500,000 in £1 shares.

The British address is: Chibuluma Mines, Selection Trust Building, Mason's Avenue, E.C.

East Rand Gold, Coal and Estate.—Since the end of its financial year, June 30, 1951, this company disposed of its holding of 49,947 shares in Harmony Gold acquired through its investment in Union Free State Coal & Gold. The proceeds of the sale were used to discharge in full its debt to Rand Mines, Ltd. The year's operations to June 30 last, showed a debit balance of £2,499 (£2,959) and this amount, together with £7 for taxation, was deducted from the forward balance, reducing it to £34,309.

Oceana Consolidated and E.C.A.—At last week's meeting of Oceana Consolidated, the chairman, Mr. W. W. Parker, in a reply to a shareholder's question, said that E.C.A. engineers were at present examining the company's asbestos property in Southern Rhodesia. Earlier in the meeting, Mr. Parker had announced that a new ore body of unknown extent had recently been discovered, from which a 25 lb. sample had been taken and submitted for expert examination.

Symaf (Syndicat Minier Africain).—The report of Symaf (Syndicat Minier Africain) for the year ended June 30 last states that the company's output for the year was 4,521 tonnes of black tin yielding 3,410 tonnes of metal, 27 tonnes of wolfram and 1¼ tonnes of columbium-tantalum concentrates. In the year previous the production of tin was 3,516 tonnes. The number of natives employed was 10,809, less than the previous year due to increased mechanisation. The meeting of the company will be held in Brussels on Monday next.

Kwahu Mining Pays 12½ Per Cent.—A preliminary statement of the results of Kwahu Mining Co. (1925), showed that net profit improved to £25,308 compared with £9,133 previously. The dividend distribution was 12½ per cent (nil), which required a net amount of £5,250. The carry forward amounted to £16,239 against £2,415. For the previous year, there was a surplus on valuation of investment of £35,036 and £69,972 was brought in.

The announcement also states that the balance of expenditure on Siwum Concession written off, was £5,740 compared with £107,050. Mr. O. V. G. Hoare is chairman and the annual meeting will be held on November 22.

Tati Company Maintains Dividend.—This company, which owns land and mineral rights in Tati Territory, Bechuanaland, records in a preliminary statement a profit for the year to April 30 last, after all charges including £2,300 for taxation, of £580 compared with £1,276 in the previous year. The dividend is being maintained at 2 per cent., which will absorb £1,611, leaving the forward balance at £6,375 against £7,406 previously. The chairman, Mr. T. P. Paterson, states that there has been a revival of interest in gold and base metals in Bechuanaland; 35 prospecting licences were issued and 13 blocks of claims registered. Three small operating gold mines recovered 309.65 oz. gold during the year.

B.S.A. Pays Interim of 13¾ Per Cent.—At the annual meeting of the British South Africa Co. ("Chartered") held in July last, the company's president, Sir Dougal O. Malcolm, intimated that the time had come when the payment of interim dividends followed by final payments at the end of the financial year could be considered. This has now been carried into effect, and an interim dividend of 13¾ per cent, less tax, in respect of the year ended September 30, 1951, has been declared. This compares with a single payment of 33¾ per cent for each of the two preceding years.

The current interim of 13¾ per cent is payable on November 24 to all members registered on the books on October 19.

Broken Hill South—Higher Profits; Increased Payment.—Broken Hill South, the Australian lead-zinc producer, for the year ended June 30, 1951 showed a net profit of no less than £1,757,925, an increase over the previous year's figure of £616,740. Moreover, this net figure was arrived at after providing for taxation, £1,195,000, and New South Wales Mining Royalty of £818,000.

The vastly improved earnings are due to a considerable degree to the higher international prices obtaining for the metals.

The final dividend payment of 5s. per 5s. share brings the total distribution for the year to 160 per cent compared with 80 per cent paid previously.

North Broken Hill's Impressive Profit Expansion.—The higher international prices for lead and zinc are reflected in the impressive profit expansion of North Broken Hill for the year ended June 30, 1951. Although the mine expenditure advanced to £3,359,417 (£2,431,791) mine production climbed steeply to £7,770,418 (£4,427,133). Taxes and royalty liabilities were very much heavier at £2,084,000 (£661,400), but even so net profit of £2,450,753 was in sharp contrast to the previous year's earnings of £1,479,233.

Shareholders received a good slice of the additional profit and the dividend was raised to 170 per cent compared with 120 per cent previously.

Total ore reserves at June 30, 1951 amounted to 4,883,000 tons as compared with 5,005,000 tons.

All the figures cited above are in Australian pounds.

Taiping Consolidated have announced that a war damage award of $616,467 has been made against the cost of restoration together with a further provisional award of $114,106 to cover items lost but which the Company does not intend to replace—a total of $730,573. An interim dividend of 60% is payable on assessed claims and this dividend will be set off against the Company's Government Rehabilitation Loan of $468,466.

In respect of tin ore lost in trainsit at the fall of Malaya, an outright award of $8,500 has been made. Settlement of the award will not be made from the "Tin" pool but will be made from the allotment for claims falling under the heading of "Other" claims. An interim dividend of 30% is payable on claims in this category and will also be set off against the Rehabilitation Loan.

Silvermines Lead & Zinc's Loss.—Silvermines Lead & Zinc Co., the Irish base metal producer, during the year to March 31, 1951 incurred a loss of £31,238, thereby increasing its debit balance forward to £51,980.

It is estimated that for the five months ending August 31 last, a profit of £13,149 was earned, but this figure, it is stated, was not indicative of the potential earning capacity as during the greater part of the period, both the lead and zinc treatment plants were working at only about half their rated capacity.

The E.C.A. authorities have approved a development loan of £37,000 to the company, and the terms and conditions are being considered by the directors.

The new 200 ft. shaft in the Silvermines Zinc area at October 10 was 65 ft. deep, and it is hoped that it will be completed by the end of November.

Kentan Gold Areas.—Geita Forges Ahead.—For the year ending June 30, 1951, Geita Gold Mining Company, in which Kentan holds a controlling interest, treated 196,573 tons compared with 174,748 tons, an increase of 21,825 tons. Gold recovered improved to 33,584 oz. (30,524) as did the output of silver which mounted to 18,954 oz. against 8,534 previously Operating costs per ton remained virtually unchanged at 34.68s. (34.98s.), and total operating profit before deducting debenture and loan interest, depreciation and the final instalment of the provision for premium on debenture redemption, was £81,719 compared with £64,064 for the previous year.

At the fiscal year end, the ore reserves were estimated to be 2,114,427 tons; averaging 3.7 dwt. per ton, compared with 2,280,456 tons, averaging 3.8 dwt. per ton.

The consulting engineers state in the progress report that the properties can produce at the rate of 30,000 tons per month, and that further development might eventually justify an even higher milling rate.

Thistle-Etna: Clean Up Operations Begin This December.—Normal mining operations of the Thistle-Etna Gold Mines will cease as from November 30, 1951, states Sir Godfrey Fell, chairman, in his address to shareholders circulated with the report and accounts for the year ended March 31 last. Sir Godfrey in making this announcement referred to a letter received from the company's general manager and consulting engineer, Mr. Prior, dated September 26.

During the year under review, tonnage milled was 59,600, which yielded 5,967 oz. compared with 78,750 tons yielding 6,444 oz. No primary development work was carried out during the year. Thus the tonnage crushed substantially reduced the ore reserves—already low—to 25,380 tons averaging 2.29 dwt. compared with 75,810 tons averaging 2.72 dwt. Although mine operations showed a profit of £7,920 after writing off development charges and providing for depreciation, taxation, etc., a loss was ncurred of £11,733, which added to the £13,298 brought in, resulted in a debit balance of £25,031 to be carried forward.

The annual meeting will be held in London on Nov. 13.

New Asbestos Company.—Rhodesia Monteleo Asbestos, Ltd., which was formed in July last and was incorporated in Southern Rhodesia, has holdings comprising 12 blocks of mining claims covering a total area of approximately 740 acres in the Vukwe Hills, about 15 miles south-east of Shabani, Southern Rhodesia. These claims are in the great serpentine belt in which asbestos is being mined by various companies. Test investigations carried out, indicate an asbestos yield of 1½ to 2½ per cent. on the claims with a high percentage of long fibre and a comparatively small percentage of "shorts," the average market value being estimated at a minimum of £175 per ton of 2,000 pounds.

It is estimated that production should begin early in the second half of next year and plant capacity has been provided for an initial milling rate of 15,000 tons of ore. Two "aerofall" milling units, complete with all auxiliaries, are due to arrive on the property early in 1952.

The authorized capital of the company is £600,000 divided into 2,400,000 shares of 5s. each, of which 200,000 shares are to be held in reserve. The company is administered by New Montelo, Ltd., and African & European Investment Co. are acting as technical advisers.

Central Mining Free State Areas.—This finance and holding company was registered in the Union in 1949 under the auspices of Central Mining & Investment Corporation. The report and accounts for the year to June 30, 1951 now published show that the total book value of the company's investments at that date amounted to £2,359,968, their market value on the same date being £95,447 lower.

The company has a large interest in Harmony Gold, indirectly through its holding of 2,510,750 shares in Union Free State Coal & Gold which holds 1,818,945 shares in Harmony, and directly through its own holding in Harmony of 753,225 shares. During the year it arranged short term loan facilities for Harmony up to £200,000 bearing interest at 5 per cent and at the fiscal year-end this loan account, including accrued interest, totalled £150,569. Shares held in New Consolidated Free State Exploration totalled 337,500 and have been entered in the books at cost although the directors believe their value is somewhat higher.

Profit and loss account showed that the net result of the year's operations was to increase the debit balance from £28,512 to £112,005.

West Dries' 100 Per Cent Payability.—Good progress has been made with the erection of the reduction plant which it is hoped will be in commission early in 1952, state the directors of West Driefontein in their report for the year ended June 30, 1951. During the year shaft sinking continued at Nos. 1, 2 and 3 shafts. No. 1 was sunk a further 886 ft. to 4,007 ft. The rich carbon leader was intersected in this shaft at 3,797 ft. below the collar and sixteen sections were sampled round the periphery of the shaft averaging 110.1 dwt. per ton over a sampled width of 11.2 in. equivalent to 1,233 in.-dwt. No. 2 shaft, which was sunk 368 ft. to 4,548 ft., intersected the carbon leader at 4,415 ft., a small exposure only being encountered in the shaft. Thus to obtain an adequate exposure a drive was advanced for 37 ft. from the shaft, which, on sampling at five foot intervals, averaged 45.2 dwt. per ton over 23.8 in. equivalent to 1,075 in.-dwt. Fissured ground was encountered in No. 3 shaft requiring cementation, the total footage sunk being 366 ft. giving a total depth of 1,388 ft.

Development footage advanced during the year totalled 6,448 ft. Footage sampled was 1,490 ft. all of which proved payable at an average value of 14 dwt. per ton over 45 inches equivalent to 630 in.-dwt.

Cash assets are shown in the latest balance sheet at £1,426,111; current liabilities at £229,992 and contingent liabilities at £722,426.

Rooderand Main Reef Passes Dividend.—The big decline in receipts from the sale of investments of Rooderand Main Reef for the year to June 30, 1951, to £23,297 as against £176,477 was the major factor contributing to the sharp drop in profits by £116,743 to £60,509. However, the tax burden of £5,000 was negligible in comparison with the £80,000 borne on the previous year's better earnings so that net profit for the year under review was £55,509 compared with £97,252.

Nevertheless, no dividend was paid against 5 per cent previously, the carry forward being strengthened by the addition of £55,509 increasing it to £352,848.

The company's principal investment is its large holdings of Free State Development Freddies North and Freddies South which represents approximately 77.5 per cent of its total holding of quoted investments. These investments at cost are shown in the latest balance sheet at £2,975,427, an increase of £48,917 over 1950. The market value at the end of June last was £2,714,833. At the same date the company's holding of Harmony Gold amounted to 20,290 shares.

Potentially valuable as the company's retention of a 22½ per cent in the net vendor's consideration and 18 per cent on the subscription rights which may accrue in respect of mineral rights of farms aggregating 2,435 morgen in the Odenaalsrus District. Some of the farms lie immediately north of the farm Van Den Heeversrust 419 on which "Geoffries" has obtained some interesting borehole results.

Doornfontein's High Payability.—The report and accounts of Doornfontein Gold Mining for the year to June 30, 1951, records that the Carbon Leader was intersected in the Annan Shaft at 4,151 ft. At this depth 720 ft. of crosscutting was carried out south of the shaft to reach the Carbon Leader Zone. Of this footage 380 ft. was advanced on reef and sampled and 320 ft. or 84.2 per cent proved payable averaging 16 dwt. per ton over 45 in. equivalent to 720 in.-dwt. The Carbon Leader Zone in the shaft itself is made up of three bands, top, middle and bottom. The top and middle bands when sampled gave poor values but the bottom band of which five sections were sampled gave an average of 43.5 dwt. per ton over 24.2 in. equivalent to 1,052 in.-dwt.

Owing to the difficulty of developing with shaft sinking equipment and in the light of these results development work has been stopped and will not be re-started until the Annan shaft has reached its final depth and the permanent equipment has been installed. At the end of June last it had been sunk to 4,442 ft.

Work has commenced on the testing and consolidation of the ground selected for the site of the reduction plant.

Details of the programme of shaft sinking and development and installation of equipment to support a milling capacity of 48,000 tons per month were given in our issue of Sept. 28 and the proposals reported to the extraordinary meeting held on October 17, for raising the funds to give effect to this programme have been duly passed and Treasury consent has been obtained for the U.K. portion of the issue.

Topical News in Brief

Oil Prospecting to Start in Jamaica.—The Jamaican Government has recently granted a licence to the Base Metals Mining Corporation, Toronto, to prospect for oil throughout the island.

Big Diamond Found in South Africa.—A diamond, worth between £100,000 and £150,000, is reported to have been found at the Premier diamond mine near Pretoria. The stone weighs 283½ carats and is of excellent quality.

French Customs Duties on Some Equipment Temporarily Suspended.—The French authorities temporarily suspended Custom duties on the import of about 60 items of equipment, excluding their spare parts. The items include compressors, scrapers (weighing six tons or more), crushing machines (weighing 130 tons and more) and rolling mills.

Joint Australian-German Company to Mine Coal in N.S.W. International Constructions Ltd., owned jointly by Hochtief Ltd., Essen, and Constructors Ltd., Sydney, will begin operations in November to mine 11,000,000 tons of coal near Singleton, N.S.W. German equipment worth nearly £400,000 will be employed, and some mining technicians will be brought out from Germany.

East German Miners Demand More Mechanization.—A conference of East German miners and mining experts held at Leipzig recently, demanded more mechanization. The official East German News Agency quoted one delegate as saying that 46 per cent of miners' working time was spent in loading and unloading coal, while only 35 per cent was actually spent in winning it.

Dollar Loan to Yugoslavia.—The $28,000,000 loan to Yugoslavia, made by the International Bank, will be used principally to purchase machinery and installations to improve the country's electricity network. Yugoslavia will also use part of the loan to modernize coal and copper mining installations ni Bor, to complete the Trepca electrolytic plant, and to improve railway and shipping facilities.

Swedish Trade Agreement with Belgium-Luxembourg.—Sweden and Belgium-Luxembourg have initialled a new trade agreement valid for one year from October 1, under which Sweden will sell- Belgium-Luxembourg 1,800,000 tons of iron-ore. In return, Belgium-Luxembourg will sell Sweden 270,000 tons of commercial iron and 5,000 tons of copper. Belgium will also deliver to Sweden 100 tons of cobalt, 90 tons of cadmium, and 7,500 tons of manganese ore.

N.S.W. to Establish New Coal Mine.—The New South Wales Government has announced that it will establish an underground coal mine at Liddell, 12 miles north of Singleton. The coal seam varies from 6 ft. to 12 ft. in width, and initial output is expected to reach 1,000 tons a day. Preliminary work has already commenced and production will start within a few months. The mine will be fully mechanized and may be equipped at a later stage with coal washing plant.

E.C.A. Requests 100 Liberty Ships to Bring U.S. Coal to Europe.—Because of the increased defence production, American coal exports now total around 3,000,000 tons a month, and to ease the transportation problem the E.C.A. is asking the U.S. Maritime Commission for 100 more liberty ships between October 14 and November 3, to carry coal to Europe. These government vessels are only used when private shipping is not available.

Indian Industrial Organization Bill.—Coal, iron and steel and non-ferrous metals are among the 38 key industries covered by the recently enacted Indian Industrial Organization Bill. This bill is modelled on the U.K.'s 1947 Industrial Organization & Development Act, and it provides for Government regulation of 38 key industries and their development through development councils. Mr. H. K. Mahatab, Industries & Commerce Minister, stressed in the Indian Parliament that the new regulation did not mean nationalization.

Steel Mill for Newfoundland.—Mr. J. R. Smallwood, the Newfoundland Premier, in a recent broadcast, said that 15 new industries would be started in Newfoundland in the next few months. These included a steel mill to process iron ore in the Bell Island iron mines, and engineering and aluminium plants. The steel mill was, the Premier said, the most important because it would open the way for subsequent metallurgical developments. Capital for the new industries will be from Britain and other European countries.

First Test Drilling for Oil in Nigeria.—The first deep well ever to be drilled for oil in Nigeria, was recently spudded-in near Owerri, in the eastern part of the country. With the equipment used a depth of over 10,000 ft. can be reached. Surface seepages of oil have for a long time indicated the possibility of oil deposits in Nigeria. Before the last war, the Shell and Anglo-Iranian were jointly granted an exploration permit. Activities were suspended in 1940, but in 1946, the search was renewed. A new company—The Shell-D'Arcy Petroleum Development Co. of Nigeria, Ltd.—was formed in September, 1951, to conduct operations on behalf of the parent organizations, which have already cost more than £1,500,000.

Developments in Silesia.—According to reports to hand the exploitation of rich new deposits of high quality coking coal has begun in the Lower Silesian coal basin, and output has reached the target for this year.

A modern giant high pressure boiler has been put into operation in the Zabrze power station which is being expanded under the Polish Six-Year Plan, and will help to meet the growing needs of the Silesian industrial area. The boiler is equipped with installation for eliminating liquid slag, while the installations to remove exhausts gases are equipped with electric filters which, it is claimed, keep down soot and prevent its being scattered.

European Metal Experts Leave for U.S. Study Tour.—The O.E.E.C. in Paris have announced that eighty specialists, divided into three expert missions, have left for the United States under the O.E.E.C. Technical Assistance scheme. They will study respectively galvanizing techniques, non-ferrous heavy metal fabrication, and smelting and refining of non-ferrous metals. On completion of a six weeks tour of research centres and industrial undertakings, the experts will return to Paris to draw up their reports for the eighteen O.E.E.C. member countries. These three missions bring up to 60 the number of technical assistance projects already carried into effect. The U.K. is represented on two of the three missions.

F.M.S. Chamber of Mines Answers U.S. Senate.—We have received a copy of a detailed reply prepared by the F.M.S. Chamber of Mines and the All-Malaya Chinese Mining Association to the report presented to the U.S. Armed Services Committee containing the now notorious allegation on the "gouging" of American taxpayers which are dealt with at length, and have already been widely answered. Perhaps the chief interest in these exchanges now is that a Mission is being sent from the U.S.A. to Malaya to study the situation. The chairman is General Wilson, G.S.A., and other members include Messrs. Weaver (R.F.C.), Charles Merrill (Bureau of Mines) and H. P. Bramble (International Materials Office). The Mission was due to leave Washington this month.

Japanese Steel Company's Expansion Plans.—An official of the Yawata Co., Tokyo, Japan's largest iron and steel company, is to visit Britain and the Continent to buy steel-making machinery. The company is planning a large modernization and rationalization programme to enable it to increase production. The company's chief engineer, Mr. S. Dazai, has already bought a cold strip rolling mill at a cost of $2,100,000 from an American machine company. He told Reuter that he would go first to Frankfurt, to begin negotiations for the purchase of a rolling mill and would then visit France, Switzerland, Luxembourg, Belgium, Sweden and Britain. Mr. Dazai said he was particularly interested in British heavy-section steel-making machinery.

Progress in Open-Cast Mining in the Soviet Union.—Thirteen new open-cast coal mines have been put into operation in the U.S.S.R. coal basins in 1951. As compared with the pre-war level, coal production by the open-cast method has increased over six times. Mining-transport equipment has been almost completely renewed at open-cast mines during the last few years. Compared with pre-war, the number of excavators alone has increased over five times. Powerful excavators with buckets the capacity of which amounts to 13 or 20 cu. yards have been brought into operation this year. Each of these machines replaces the labour of 7,000 and 9,000 workers, respectively. This equipment, it is claimed, has enabled open-cast coal production to be mechanized completely.

Developing Iron-ore Production in Goa.—A further report which has just come to hand regarding the proposed development of iron-ore production in Goa, referred to in *The Mining Journal*, September 21, states that the Kokan Kogyo Co. (Kokan Mining Co.) will shortly sign a contract with the Chowgli Co. of Goa to develop the iron mines there. Of the required capital of Y.570,000,000, 80 per cent will be lent by the Japan Export Bank and the rest by five city banks, including the Bank of Tokyo. The draft contract provides that Kokan Kogyo will despatch 35 technicians to Goa by next March to assist in the installation of equipment for the development of the mines. Mining is scheduled to be started in September next year and it is proposed to ship 1,500,000 tons of iron ore to Japan during the first three years. An article on "Goa's Mineral Resources" appeared in *The Mining Journal*, June 15, 1951.

Large Taconite Plant to be Erected in U.S.—Contracts for the construction of a $75,000,000 plant for the processing of magnetic taconite ore at Beaver Bay, Minnesota, have been

awarded by the Reserve Mining Co. of Cleveland. Said to be the first plant to produce blast furnace feed in commercial tonnages from taconite ore, it will tap the large resources of taconite in the Mesabi range, amounting to nearly 1,500 million tons. It will have a capacity to produce 2,500,000 tons of high grade iron ore from about treble that amount of taconite. The taconite will be pulverized and iron mineral separated by a magnetite process from sandy waste material. Finally, the iron mineral will be rolled into small pellets and baked in a furnace. By the process, it is claimed, it will be possible to produce, at a competitive cost, iron ore pellets containing about 64 per cent iron, from taconite with an iron content of as low as 25 per cent.

New U.S. Mineral Exploration Projects.—Contracts providing Government assistance for 16 exploration projects for strategic and critical metals and minerals in nine States and Alaska were signed and approved by the Defense Minerals Administration during the first half of September. These projects involve an estimated cost of $564,022, of which $402,449, or 71.35 per cent, is to be borne by the Government and the rest by private industry. The largest contract entered into during the period was with the Admiralty-Alaska Gold Mining Co., which proposes to spend $120,000, of which the Government will provide $108,000, in search for a commercial deposit of nickel-cobalt ore. The newly signed contracts call for search for 14 strategic and critical metals and minerals—antimony, zinc, copper, tungsten, mica, lead, manganese, thorium, beryl, columbite, tantalum, mercury, nickel and cobalt.

France-U.S.A. to Operate New Diamond Mine.—The Grivar Exploration & Development Corporation, an American concern, has announced that a new diamond mine in French Equatorial Africa, located 220 miles south-east of Berberatizn, French Equatorial Africa, and close to the Umbangi River, will be operated jointly by America and France.

The new mine is the outcome of two years' preliminary investigation and exploration, and its exploitation is being partially financed with a $700,000 Marshall Aid Loan. There are nearly 400 workers under a group of French and American mining engineers at the mine, and some equipment, including American and French trucks is already on the site, and roads and living quarters are under construction. The first diggings have already begun.

It is expected that the joint project will ease the shortage of industrial diamonds in the U.S., as repayment of the Marshall Aid loan would be in industrial diamonds and used for America's immediate defence needs.

World Metallurgical Congress.—A new "family" of man-made metals has been announced here by the Carboloy Department of the General Electric Co. The new metal, the company said at the World Metallurgical Congress in Detroit, is chrome carbide. Advantages of the new metal, according to Mr. K. R. Beardslee, General Manager of Carboloy, are that it is lighter than tungsten carbide, and has greater resistance to abrasion, corrosion and erosion. In addition, Mr. Beardslee said, chrome carbide requires neither tungsten nor cobalt, both of which are strategic minerals in short supply. The metal has been fully tested, he said, and is now ready for quantity production.

Dr. Coheur, of the University of Liège, Belgium, told of a new process for converting pig iron into high quality steel. He described how pig iron could be converted swiftly and cheaply into high quality steel by blasting it with oxygen-enriched air and superheated steam. Dr. Coheur said that he planned to discuss this method with leaders of the American Steel Industry while he was in the United States.

World Coal, Steel and Petroleum Production Statistics.—According to U.N. Monthly Bulletin of Statistics, the volume of world mining and manufacturing production advanced to a new high in the second quarter of 1951, being 15 per cent above the corresponding quarter of 1950 and 75 per cent above the 1937 level. However, world coal output declined by 2 per cent for the second successive quarter. In the three months period April/June last, some 330,000,000 tonnes were mined compared with 327,000,000 tonnes in the second quarter of 1950. World steel production—excluding the U.S.S.R. and China—in the second quarter of 1951 amounted to 44,700,000 tonnes, or 4 per cent more than in the first quarter of 1951, and 11 per cent above the corresponding quarter of the previous year. compared with the pre-war year, 1937, current world production level is about 52 per cent higher. World petroleum production during the second quarter of 1951 amounted to approximately 140,000,000 tonnes of crude petroleum. This figure, which excludes the U.S.S.R.'s output, represents a 6 per cent increase over the first quarter of 1951, and a 19 per cent increase over the corresponding quarter of 1950. Current production is running at more than double the 1937 average.

Distinguished Gathering at R.S.M. Centenary Banquet

The Centenary Banquet of the Royal School of Mines, a report of which appears on page 411, took place last Tuesday evening at the Draper's Hall, London, E.C.2, under the auspices of the R.S.M. Association, the President of the Association, Mr. Vernon Harbord, being in the chair. The banquet, which was graced by the presence of H.R.H. The Princess Alice, Countess of Athlone, and Major-General the Earl of Athlone, was also attended by a number of other distinguished guests and their ladies, among whom were: The Hon. T. W. White, *High Commissioner for Australia*; Dr. A. L. Geyer, *High Commissioner for South Africa*; Professor Hale Bellot, *Vice-Chancellor, London University*; Dr. D. W. Logan, *Principal, London University*; Air Chief Marshall Sir Roderick Hill, *Director iof the Imperal College*; Lord Macmillan, *Chairman of the Royal Commission for the* 1851 *Exhibition*; Professor E. D. Adrian, *President of the Royal Society*; Sir Lewis Fermor, *President of the Institution of Mining and Metallurgy*; Sir Henry Tizard; Sir Andrew Bryan; Sir Andrew McCance; Mr. Robert Annan and Col. C. E. Temperley. Other guests of the Association included: Mr. H. Rich and Lt. Col. G. A. Whitworth, *respectively Chairman of the Governing Body and Principal of the Camborne School of Mines*; Lt. Col. G. C. Lowry, *Secretary of the Imperial College*; Mr. B. Sangster Simmonds, *Master of the Draper's Company*; Mr. L. Farrer Brown, *Secretary of the Nuffield Foundation*; Assistant Professor L. H. Hewer and Dr. B. Atkinson, *respectively President and Hon. Sec. of the Royal College of Science Association*; Mr. C. L. Le Maitre and Mr.A. L. Holbein, *representing the old Centralians*; Mr. G. Guillotte; Mr. L. H. Cooper; Mr. U. Baliol Scott; and Mr. D. Griffiths and Mr. W. S. Robinson, *respectively President and Hon. Sec. of the R.S.M. Union.*

OLD STUDENTS AND STAFF

Over 70 old students and members of the staff of the School were present. In addition to the President himself, these included Count Albiz (entered the School in 1907), Messrs. G. D. Baker (1923), A. M. Bensusan (1930), J. A'C. Bergne (1919), W. E. Blunt, H. N. Blyth, S. C. Brealey (1939), D. S. Burwood (1921), D. F. Campbell (1903), His Excellency Dr. A. J. Clasen (1923), Mr. C. A. V. Craven (1933), Professor C. W. Danuatt (1910), Mr. N. B. Davies (1907), Sir Arthur Dean (1909), Messrs. J. B. Dennison (1913), J. E. Denyer (1928), J. C. Dixon (1946), D. J. I. Evans (1946), T. E. Evans, P. Fairbairn (1930), Sir Lewis Fermor (1898), Messrs. J. C. Gaynor (1923), A. S. Gill (1913), D. Gill (1907), R. Glossop (1920), J. K. L. Graham (1921), F. D. Gurrey (1903), J. F. Harrington (1946), Dr. F. R. S. Henson (1920), Messrs. P. D. Higgins (1936), F. Higham (1920), Col. L. C. Hill (1908), Mr. C. E. Hobley (1926), Dr. G. V. Hobson (1911), Prof. V. C. Illing, Messrs. J. Jacobi (1934), H. Jeans (1889), H. R. Kerr (1908), L. Knight (1905), R. Lambert (1913), E. G. Lawford (1913), T. H. B. Lawther (1928), L. Lubett (1929), R. E. Martin (1945), Sir Andrew McCance (1906), Mr. E. D. McDermott (1899), Dr. R. A. Mackay (1920), Mr. W. A. C. Newman (1908), Dr. L. B. Pfeil (1919), Messrs. H. W. Pokorny (1940), E. J. Pryor (1911), A. F. Radcliffe (1913), W. F. Randall (1917), J. B. Richardson (1907), Prof. J. A. S. Ritson, Messrs. C. I. Robinson (1903), S. H. Shaw (1922), Prof. W. E. Sillick, Messrs. R. H. Skelton (1906), St. J. R. C. Shepherd (1919), J. S. Sheppard (1933), Dr. S. W. Smith (1896), Messrs. A. C. Sturney (1919), H. Tatham (1910), C. W. Thomas (1920), Dr. E. N. Tiratsoo (1934), Messrs. A. H. J. Todd (1946), P. I. Togni (1944), Dr. J. H. Watson (1914), Lt.-Col. A. R. O. Williams (1922), Prof. D. Williams, Messrs. L. H. Williams (1945), R. B. Woakes (1907), N. Yarkoff (1927), and F. Yeates (1920).

A number of students now at the School also attended the banquet. These, in addition to the President and Secretary of the R.S.M. Union, were: Messrs. P. W. Andrews, J. W. Birch, W. R. Brandum, C. Bristowe, R. D. Butler, G. A. Cox, R. J. Casalis de Pury, R. du Cloux, C. D. Easteal, G. J. Evans, D. B. Fraser, D. O. Gilbey, J. Grafnger, A. A. Greenfield, P. Jarvis, M. Martin, D. K. Nicholas, J. W. Norman, M. P. O'Connor, A. J. Patrick, R. G. A. Pearce, W. S. Robinson, N. L. Samways, T. H. Scrimger, D. J. Small, H. T. White, and P. V. Young.

JOHANNESBURG CONSOLIDATED INVESTMENT CO., LTD.

(Incorporated in the Union of South Africa)

MINING COMPANIES' REPORTS FOR QUARTER ENDED SEPTEMBER 30, 1951

GENERAL REMARKS.—The revenue from gold has been calculated on the basis of gold at 248s. 3d. per f.oz. In determining the payable development footage, gold has been taken at 248s. 3d. per f.oz. The development figures are the actual results of the sampling of development work on reef; no allowance has been made for modifications which may be necessary when computing the ore reserves.

10 and 11, Austin Friars, London, E.C.2. October 24, 1951.

The East Champ D'Or Gold Mining Co. Ltd.
(Incorporated in the Union of South Africa)

Issued Capital £259,875

Crushed 98,000 tons; yielding 14,899 f.oz. gold.

	£	Per ton crushed s. d.	Per f.oz. gold produced s. d.
Revenue from Gold.....	184,935	37 9	
Working Costs.....	152,267	31 1	204 5
	32,668	6 8	
Sundry Revenue.....	762		
Profit for Quarter.....	33,430		

In addition to the above, £8,989 accrued during the quarter in respect of increased revenue from sales of gold at enhanced prices.

Taxation for the quarter is estimated at £17,880.

The expenditure on Capital Account amounted to £224.

The Development Footage sampled totalled 675 ft., and gave the following results: Payable, 480 ft., having an average value of 13.7 dwt. over 13 in. Unpayable, 195 ft., having an average value of 1.9 dwt. over 34 in.

Government Gold Mining Areas (Modderfontein) Consolidated Ltd.
(Incorporated in the Union of South Africa)

Issued Capital £1,400,000

Crushed 706,000 tons; yielding 95,092 f.oz. gold.

	£	Per ton crushed s. d.	Per f.oz. gold produced s. d.
Revenue from Gold.....	1,180,331	33 5	
Working Costs.....	1,043,102	29 6	219 5
	137,229	3 11	
Sundry Revenue.....	23,270		
Profit for Quarter.....	160,499		

In addition to the above, £60,261 accrued during the quarter in respect of increased revenue from sales of gold at enhanced prices.

The Government's share of profits for the quarter is estimated at £43,609.

The expenditure on Capital Account amounted to £1,239.

The Development Footage sampled totalled 10,885 ft., and gave the following results: Payable, 6,415 ft., having an average value of 4.6 dwt. over 49 in. Unpayable, 4,470 ft., having an average value of 2.0 dwt. over 33 in.

New State Areas Ltd.
(Incorporated in the Union of South Africa)

Issued Capital £1,514,037

Crushed 187,000 tons; yielding 23,219 f.oz. gold.

	£	Per ton crushed s. d.	Per f.oz. gold produced s. d.
Revenue from Gold.....	288,209	30 10	
Working Costs.....	287,006	30 8	247 3
	1,203	0 2	
Sundry Revenue.....	3,392		
Profit for Quarter.....	4,595		

In addition to the above, £13,322 accrued during the quarter in respect of increased revenue from sales of gold at enhanced prices.

(Note: There was no liability in respect of Government share of profits or taxation for the quarter.)

The Development Footage sampled totalled 2,117 ft., and gave the following results: Payable, 1,065 ft., having an average value of 9.18 dwt. over 22.11 in. Unpayable, 1,052 ft., having an average value of 1.4 dwt. over 45 in.

The Randfontein Estates Gold Mining Co., Witwatersrand, Ltd.
(Incorporated in the Union of South Africa)

Issued Capital £4,063,553

Crushed 1,071,000 tons; yielding 127,947 f.oz. gold.

	£	Per ton crushed s. d.	Per f.oz. gold produced s. d.
Revenue from Gold.....	1,588,138	29 8	
Working Costs.....	1,479,971	27 8	231 4
	108,167	2 0	
Sundry Revenue.....	17,118		
Profit for Quarter.....	125,285		

In addition to the above, £77,038 accrued during the quarter in respect of increased revenue from sales of gold at enhanced prices.

Taxation for the quarter is estimated at £39,396.

The expenditure on Capital Account amounted to £16,143.

The Development Footage sampled totalled 12,100 ft., and gave the following results: Payable, 3,735 ft., having an average value of 5.2 dwt. over 45 in. Unpayable, 8,365 ft., having an average value of 1.7 dwt. over 43 in.

RHODESIAN ANGLO AMERICAN LTD.

DIVIDEND No. 30

The Directors to-day resolved to recommend to the forthcoming Annual General Meeting the payment of a final dividend in respect of the year ended 30th June, 1951. Particulars of this dividend and of the profits and total dividends for this and the previous year are given below:

	1951	1950
Rate:		
Final	45%	25⅛%
Total	55%	32½%
Amount per 10/- unit of stock:		
Final	4/6	2/6¼
Total	5/6	3/3
Net cost to Company:		
Final	£2,680,474	£839,509
Total	£3,276,135	£1,064,743
Tax deductible from final dividend:		
(a) Members with registered addresses in United Kingdom	To be announced —see below	9/-
(b) Other Members	Nil	
Group profits before taxation ...	£14,819,139	£7,985,033
Deduct Taxation	5,627,338	4,328,765
Group net profits for the year ...	£9,191,801	£3,656,268
Add special credits—taxation provisions no longer required ...	1,554,398	214,182
	£10,746,199	£3,870,450
Profits attributable to members of Rhodesian Anglo American Ltd.	£5,197,704	£1,894,996
Profits retained in Subsidiaries' Accounts	1,887,384	804,945
Net profits in Rhodesian Anglo American Ltd. Accounts ...	£3,310,320	£1,090,051

Note.—This recommendation takes no account of the proposed legislation in the United Kingdom to limit dividends, and is therefore subject to modification prior to or at the Annual General Meeting.

CURRENCY

This dividend recommendation is based on payment being made in United Kingdom sterling. Payment to members registered on the Dominion Register will be made in the equivalent Union of South Africa currency, provided that if in the opinion of the Directors there is no material difference between the two currencies at the time of payment of the dividend, such members will receive payment at par of exchange.

DEDUCTION OF TAX

(1) As this dividend is payable partly out of profits earned in the six months immediately preceding the 1st January, 1951, on which date the Company transferred its seat of management and control to Northern Rhodesia, half of it will be regarded as a free of tax dividend for United Kingdom tax purposes. It is emphasised that this arrangement applies only to the dividends for this year. United Kingdom tax at a reduced rate to allow for unilateral relief will be deductible from the remaining half of the dividend. This rate will be announced later.

(2) Northern Rhodesia Income Tax is not in any case deductible from this Company's dividends.

(3) Under existing legislation dividends declared out of future profits will be paid:
   (a) To members with registered addresses in the United Kingdom at the declared rate less United Kingdom Income Tax at a rate reduced by a provisional allowance for relief from double taxation.
   (b) To other members at the declared rate without any deduction of tax.

If the recommendation is approved, Dividend Warrants will be posted on or about the 19th December, 1951 to members registered at the close of business on 5th November, 1951. The Transfer Registers in London and Johannesburg will be closed from 6th November to 13th November, 1951, inclusive.

For and on behalf of
ANGLO AMERICAN CORPORATION
OF SOUTH AFRICA, LTD.

Registrars and Transfer Agents in England.
W. E. GROVES,
London Secretary.

11 Old Jewry,
London, E.C.2.
19th October, 1951.

UNION FREE STATE COAL & GOLD MINES LIMITED

(Incorporated in the Union of South Africa)

Extracted from the Annual Report for the year ended 30th June, 1951

AUTHORISED CAPITAL **£2,000,000**
ISSUED CAPITAL (in 7,377,450 shares of 5s. each) **£1,844,363**

PROPERTY

At 30th June, 1951, the Company's property comprised:—

MINERAL RIGHTS: Coal—7,472 morgen in the Transvaal, including 4,556 morgen on which Raleigh Colliery is situated; 1,423 morgen in Natal.

MINERAL LEASES: Coal—5,216 morgen in Natal.

FREEHOLD AND LEASEHOLD (excluding mineral rights): 5,151 morgen in the Transvaal; 6,659 morgen in Natal.

OPTION AND PROSPECTING CONTRACTS: Coal—3,807 morgen in the Orange Free State; 1,019 morgen in the Transvaal; 1,340 morgen in Natal.

PROSPECTING CLAIMS: Coal—1,593 morgen in Natal. (Note—The abovementioned areas are shown to the nearest morgen.)

BUSINESS ERVEN: Two properties in Middelburg, Transvaal. One property in Natal.

HARMONY MINING LEASE AREA—In terms of the agreement governing the flotation of Harmony Gold Mining Company Limited, completed on 14th August, 1950, Union Free State Coal & Gold Mines Limited, New Consolidated, Free State, Exploration Company Limited and New Free State Gold Estates Limited, agreed to contribute the mineral rights of areas in the Ventersburg district of the Orange Free State to make up a joint mining area, in extent approximately 3,835 morgen equivalent to approximately 5,523 claims, in respect of which Union Free State Coal & Gold Mines Limited had applied for a mining lease in March, 1950.

The Company's application for a mining lease was amended during July, 1950, and on 28th September, 1950, it was advised that its application had been accepted by the Honourable the Minister of Mines and that a mining lease in respect of the total area of "approximately 5,520 claims" would be granted.

The flotation agreement also provides that this company will cede the mining lease, when granted, to Harmony Gold Mining Company Limited for a consideration of £250,000 payable in cash. This company's proportion of such vendor consideration, amounting to £125,445, was received during the year and after deducting the sum of £79,193, being the original cost of acquiring and prospecting the mineral rights of the Harmony property, the Company realized a profit of £46,252.

Harmony Gold Mining Company Limited which was incorporated and received a certificate entitling it to commence business on 25th August, 1950, has an authorized capital of £3,000,000 divided into 12,000,000 shares of 5s. each of which 8,000,000 shares have been issued. This Company had the right and obligation to subscribe or procure subscriptions at par for 4,014,240 of the abovementioned shares. Of these, 2,213,235 shares were offered at par to shareholders in the proportion of three shares in the Harmony Company for every ten shares held in this Company. The balance together with those shares not taken up by shareholders, were subscribed for by the Company, which at the end of the financial year held 1,818,945 shares.

It will be recalled that in order to enable a mine to be established as quickly as possible, this Company undertook, on behalf of the Harmony Company, the preliminary work on the mining lease area, including shaft sinking operations, the erection of equipment and the construction of offices, housing, workshops, stores and other essential buildings. This work was continued until 31st January, 1951.

On 1st February, 1951, Harmony Gold Mining Company Limited took over the property and assumed responsibility for the operations at the lease area and refunded all amounts advanced by this Company on its behalf to 31st January, 1951, together with interest at the rate of 4 per cent. per annum.

HARMONY GOLD MINING COMPANY LIMITED—An extract from a statement by the chairman of the Harmony Company regarding operations during the period ended 30th June, 1951, which accompanied its recently issued annual report is included in the Directors' report of this Company.

TRANSVAAL COAL AREAS

RALEIGH COLLIERY—The Colliery operated on a limited scale throughout the year, mining operations being confined to two production districts and one development section. The main preparation plant was put into commission by the contractors during March, 1951, but owing to difficulties experienced in its operation it has not yet been taken over by the Colliery. Most of these difficulties have been associated with dry screening, and to overcome them it has been decided, since the end of the financial year, to install a wet screening unit in the plant.

The working loss for the year was £20,815 due largely to the restricted tonnage which could be handled by the temporary screening plant and, in the last quarter of the year, by the main preparation plant.

ERMELO DISTRICT—Drilling on the ground held by the Company under option in the Ermelo district disclosed poor values and the options have been abandoned.

NATAL COAL AREAS

Drilling on the farms Braakfontein and Roy Point over which the Company holds the rights to mine in the district of Newcastle, proved a substantial area underlain by coal of a satisfactory quality. Options have been secured over certain adjoining farms which will be drilled to determine the full extent of the coal-bearing area.

Drilling is in progress on the farm Elandslaagte between Newcastle and Ladysmith. The results so far obtained have been disappointing.

BALANCE SHEET—All amounts advanced by this Company on behalf of Harmony Gold Mining Company Limited to 31st January, 1951, including interest at the rate of 4½ per cent. per annum, have been refunded.

CAPITAL EXPENDITURE—The net capital expenditure on the Company's coal properties totalled £287,799, thereby increasing the book value of these assets to £1,134,622 at 30th June, 1951.

At the request of Harmony Gold Mining Company Limited, this Company agreed on suitable conditions to make £800,000 available to that Company at 5 per cent. per annum to provide it with a portion of its temporary loan requirements and at 30th June, 1951, an amount of £602,275, which included accrued interest, had been drawn. Since 30th June, 1951, this Company has made a further £250,000 available to that Company on the same terms and conditions.

NET ASSETS—At 30th June, 1951, the net cash and cash assets amounted to £1,895,817.

The full Report and Accounts may be obtained from the London Secretaries, A. MOIR & CO., 4, London Wall Buildings, London, E.C.2.

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AUTHORISED CAPITAL **£3,300,000**
ISSUED CAPITAL (24,000,000 Shares of 2/6 each) ... **£3,000,000**

Extracted from the Annual Report for the Year ended 30th June, 1951.

Tonnage milled 1,093,000

		Per ton milled
Total Working Revenue	**£10,007,728**	**£9 3 2**
Total Working Expenditure	**2,481,079**	**2 5 5**
Working Profit	**£7,526,649**	**£6 17 9**
Total Profit for the year		**£7,564,603**
Balance unappropriated at 30th June, 1950		**509,648**
		£8,074,251
This amount has been dealt with as follows:—		
Taxation	**£3,140,988**	
Mineral Lease Consideration	**789,364**	
		3,930,352
		4,143,899
Dividends declared during the year—No. **10** of **1s. 4d.** per share and No. **11** of **1s. 4d.** per share		**3,200,000**
Leaving a balance unappropriated of		**£943,899**

The **Ore Reserve** was re-estimated as at 30th June, 1951, as follows:—

Reef	Available			Shaft and Safety Pillars			Total		
	Tons, 000's	Value, Dwt.	Width, Inches	Tons, 000's	Value, Dwt.	Width, Inches	Tons, 000's	Value, Dwt.	Width, Inches
Carbon Leader	5,517	13.0	46.2	1,132	12.6	45.8	6,649	12.9	46.1

Compared with the previous year the available reserve decreased by **443,000** tons, the value was **0.1** dwt. per ton lower and the stope width unchanged.

Satisfactory progress has been made on the work in connection with the sinking of Nos. A1, A2 and A3 Sub-incline Shafts, although the work was retarded by a shortage of steel.

The full Report and Accounts may be obtained from the London Secretaries, A. MOIR & CO., 4, London Wall Buildings, London, E.C.2.

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Bank of British West Africa 3% *i* (Dec. 1)
British South Africa Co. Stock 13¾% *i*; Shares 2s. *i*
British South Africa Co. 13¾% *i* (Nov. 24)
Kwahu Mining 12½%
Messina (Transvaal) Development 160% (Nov. 24)
Minerals Separation 20% *i*
North Broken Hill 100% (Dec. 6)
Petaling Tin 30% (Nov. 17)
Potgietersrust Platinums 8d. (Nov. 12)
Rahman Hydraulic Tin 30%
Rhokana Corporation 150%
St. John del Rey Mining Pref. 1s. Ord. *i* 6d. (Nov. 16)
Saudi Arabian Mining 10c. (Nov. 26)
South African Torbanite 12½% (Nov. 1)
Tehidy Minerals 5% *i* (Oct. 27)
Tekka-Taiping 2½% *i* (Oct. 31)
Thomas W. Ward 10%
Tongkah Harbour Tin 1s. 3d. *i*
Triefus & Co. Pref. Ord. 20% (Oct. 31)
Yukon Consolidated 10c. (Oct. 31)

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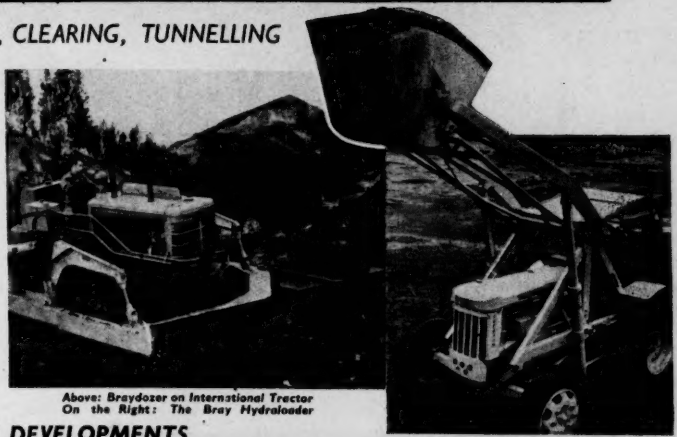

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